

No. 2023-1880

**In the United States Court of Appeals
for the Federal Circuit**

**CODA DEVELOPMENT S.R.O., CODA INNOVATIONS S.R.O.,
FRANTISEK HRABAL,**

Plaintiffs-Appellants,

v.

**GOODYEAR TIRE & RUBBER COMPANY,
ROBERT BENEDICT,**

Defendants-Appellees.

**On Appeal from the U.S. District Court
for the Northern District of Ohio
No. 5:15-cv-01572 | The Honorable Sara Lioi**

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LANGUAGE OF THE PATENT CLAIM AT ISSUE

Claim 1 of US Patent No. 8,042,586:

1. A self-inflating tire assembly comprising:

[a] a rim having a tire mounting surface extending between first and second rim flanges;

[b] a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;

[c] the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;

[d] a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall;

[e] an air tube positioned within the sidewall groove in contacting engagement with opposite groove Surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube from an

expanded diameter to a flat diameter adjacent the rolling tire foot print, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

FORM 9. Certificate of Interest

Form 9 (p. 1)
March 2023

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF INTEREST

Case Number 23-1880

Short Case Caption Coda Development s.r.o v. Goodyear Tire & Rubber Co.

Filing Party/Entity Coda Development s.r.o, Coda Innovations s.r.o & Frantisek Hrabal

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FORM 9. Certificate of Interest

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Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. <input checked="" type="checkbox"/> None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. <input checked="" type="checkbox"/> None/Not Applicable
Coda Development s.r.o		
Coda Innovations s.r.o		
Frantisek Hrabal		

☐ Additional pages attached

FORM 9. Certificate of Interest

Form 9 (p. 3)
March 2023

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

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RELATED CASES

This Court resolved an earlier appeal in this action, reversing the dismissal of the complaint. *Coda Development s.r.o. v. Goodyear Tire & Rubber Co.*, No. 18-1028, 916 F.3d 1350 (Fed. Cir. 2019) (Prost, C.J., joined by Wallach & Hughes, JJ.). No other appeal in this action has been before this Court or any other court.

Counsel is unaware of any pending case in this or any other tribunal that will directly affect or be directly affected by this Court's decision in this appeal.

JURISDICTION

The district court had jurisdiction because this case includes a patent claim. 28 U.S.C. §§ 1331, 1338. The court had supplemental jurisdiction over Plaintiffs' Ohio-law trade secret claim because it formed part of the same case or controversy. *Id.* § 1367(a). Additionally, the court had jurisdiction over all claims because the parties are completely diverse and the amount in controversy exceeds \$75,000. *Id.* § 1332(a).

This Court has appellate jurisdiction because this is an appeal from a final decision of a district court in an action arising under federal patent law. *See id.* § 1295(a)(1). The district court entered judgment on March 31, 2023, and Plaintiffs filed a timely notice of appeal on April 28, 2023. Appx1, Appx18818-18819. This appeal is from a final judgment that disposes of all parties' claims. Appx1.

INTRODUCTION

This case came on for trial after seven years of litigation, including a prior appeal in which this Court reversed the district judge’s dismissal of the complaint. Following a two-week trial, the jury returned a special verdict finding that Plaintiffs (“Coda”) had established that seven asserted trade secrets were valid and that Defendants (“Goodyear”) had maliciously misappropriated five of them, in violation of the Ohio Uniform Trade Secrets Act (OUTSA). The jury awarded \$2.8 million in compensatory damages and \$61.2 million in punitive damages—though the district court had erroneously refused to allow the jury to consider Coda’s reasonable royalty theory of damages, which would have supported a far higher compensatory damages figure.

The district judge then threw out the jury’s verdict and entered judgment for Goodyear under Federal Rule of Civil Procedure 50(b). Despite having instructed the jury on the standard for definiteness in trade secret cases, the judge decided that definiteness is actually a question of law for the judge alone, applied de novo review, and set aside the verdict, acknowledging that she was giving the jury’s verdict no deference whatsoever. The judge went on to rule against Coda on equitable issues including correction of inventorship and injunctive relief, again acknowledging that the jury saw the facts in a very different light and that she was giving its findings no weight.

This Court should again reverse the district court, remanding for a new damages trial at which Coda could seek a reasonable royalty. To preserve the appearance of justice, any remand should be to a new district judge.

STATEMENT OF THE ISSUES

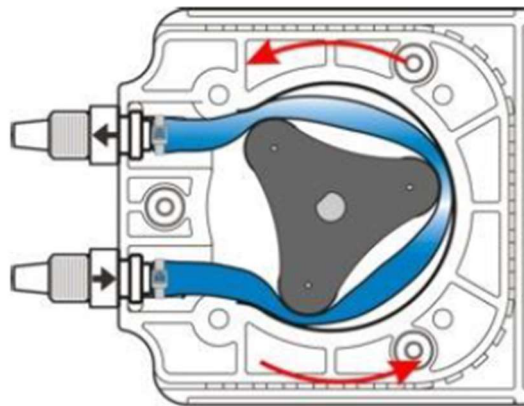
1. Did the district court err in rejecting the jury's finding that five asserted trade secrets were valid and had been misappropriated?
2. Did the district court err in refusing to allow Coda to present its reasonable royalty theory of damages to the jury?
3. Did the district court err in rejecting Coda's equitable claims for injunctive relief and correction of inventorship?
4. Did the district court err in suggesting that laches barred Coda's claims?
5. Should this case be reassigned to a new judge on remand?

STATEMENT OF THE CASE

A. Factual background

The jury found that Goodyear maliciously misappropriated five Coda trade secrets. Appx17996-18002. The trial evidence must be construed "in the light most favorable to the verdict." *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 770 (2011); *see also Patrick v. Burget*, 486 U.S. 94, 98 n.3 (1988); *Potti v. Duramed Pharmaceuticals, Inc.*, 938 F.2d 641, 645 (6th Cir. 1991).

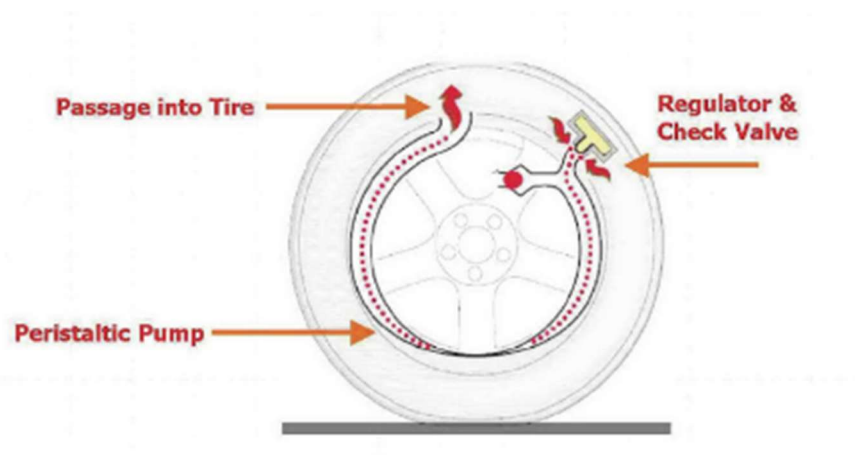
This case concerns Goodyear's theft of Coda trade secrets about how to make self-inflating tires. Self-inflating tire technology involves embedding a peristaltic pump in a tire. Peristaltic pumps operate by gradually compressing a tube to force a fluid through the tube. Appx15453. For instance, peristaltic pumps are commonly used to pump fluids from an intravenous bag. Appx15458. These pumps operate using a set of rollers that pinch the tube, then roll the pinch down a portion of the length of the tube, thereby pushing fluid in front of the pinch and pulling fluid behind it. In the illustration below, there are three rollers and a tube filled with blue liquid. The rollers move counter-clockwise, causing the fluid to be pulled from the bottom opening on the bottom and pushed through the top opening.



Appx1613.

Self-inflating tires employ this same principle, except that the “pinch” comes from the compression of the tire under load and the movement of the pinch is caused

by the tire's rotation. Appx15456-15459. This pinching force can be used to push air into the tire and keep it properly inflated. *Id.*



Appx21583.

Plaintiff František Hrabal is an engineer from Prague who spent years developing a novel self-inflating tire technology. Appx15450, Appx15468-15469, Appx15501-15526. In 2007, Hrabal finally succeeded in inventing the world's first true *self*-inflating tire, which could autonomously maintain air pressure through an integrated system driven by the tire's rotation. Appx15462-15463. He was not the first to attempt this—only the first to succeed. Appx15459, Appx15462-15463. Goodyear itself had tried to develop a self-inflating tire, but it was a disastrous failure, and Goodyear abandoned its attempts. Appx15976, Appx16930-16931.

General Motors learned of Hrabal's invention in 2008 and encouraged Goodyear to meet with him to explore commercializing his technology. Appx15527-15528. Before meeting, Goodyear and Coda executed a Goodyear-

drafted non-disclosure agreement in which they promised not to “use the Confidential Information except for discussing a possible cooperation in the field of self inflating tires.” Appx15530-15533, Appx23508.

Coda and Goodyear representatives first met in January 2009. Appx15533-15535. The Goodyear representatives, including Defendant Robert Benedict, expressed skepticism about the feasibility of Hrabal’s invention, but Hrabal addressed their concerns. Appx15536-15539.

In June 2009, Goodyear engineers traveled to Prague to “pick [Coda’s] brains,” collect more information, and examine Hrabal’s functional prototype. Appx15585-15588, Appx21188, Appx23790. Coda shared confidential information including the placement of the pump tube on the tire, the design of the pressure management system, the efficiency of the leakage compensation, and the interface (i.e., air passage) between the outside and interior of the tire. Appx15588-15591, Appx15595-15599. The Goodyear team was so enamored of the prototype that they requested time alone with it—and used that opportunity to take unauthorized photos of it. Appx16046-16047, Appx15731, Appx21287.

In November 2009, having heard nothing further from Goodyear, Hrabal emailed Benedict to ask for another meeting. Appx15674-15675. Benedict responded that a “meeting would be premature at this point.” Appx15676, Appx21222. The following month, however, Goodyear applied for the first of

numerous patents on self-inflating tires, falsely claiming that Coda's trade secrets were actually Goodyear inventions. Appx15470-15472, Appx64-83. Benedict was listed as the named inventor. Appx15472. With its wrongfully obtained patent, Goodyear achieved a virtual monopoly in the field while pushing Coda out of the market. Appx15694-15695, Appx15707-15710, Appx16214-16215. This litigation followed.

B. Procedural history

Goodyear moved to dismiss the complaint, and Judge Lioi granted the motion. Appx1082-1109. She based her decision on (a) the asserted trade secrets' supposed similarity with prior art that Goodyear had introduced for the first time in its motion-to-dismiss *reply* brief; (b) abrogated case law that limited correction-of-inventorship claims to cases of inadvertent (rather than intentional) error; and (c) a statute-of-limitations theory of the judge's own creation. *Id.* Judge Lioi also denied Coda's motion for leave to strike the prior art attached to Goodyear's reply or file a brief addressing it; Coda's motion for leave to file an amended complaint; and Coda's motion for reconsideration. Appx1082-1109, Appx1769-1783. Judge Lioi acknowledged that Coda's proposed amended complaint set forth its claims with "amazing clarity," but she treated this as a ground to *deny* amendment, accusing Coda of "gamesmanship" because, in her view, factual details in the proposed amended complaint should have been included in the original complaint. Appx1780.

Coda appealed, and this Court reversed on every point. *See* 916 F.3d at 1362. This Court explained that Judge Lioi erred by issuing a ruling based on prior art “without converting Defendants’ motion into one for summary judgment and without giving Plaintiffs a reasonable opportunity to present all pertinent material”; by basing her ruling on “an inference adverse to Plaintiffs when there were other reasonable inferences to draw in their favor”; and by dismissing the trade secret claim based on “a different theory” than Goodyear had advanced—“one to which Plaintiffs never had an opportunity to respond.” *Id.* at 1360-61 & n.7. In short, “the original complaint sufficiently stated the claims on appeal.” *Id.* at 1362.

As for Judge Lioi’s denial of leave to amend, this Court noted that “leave to amend should be freely given” and added: “We find this [denial of leave] troubling, particularly given the previously described errors.” *Id.* This Court remanded the case to Judge Lioi.

During discovery, Goodyear complained that Coda’s descriptions of its trade secrets were not concrete enough. Appx2313-2317. Judge Lioi ordered Coda to “supply a ‘closed’ response to [the interrogatories], supplying sufficient specificity and description to permit defendants to know what discovery will be relevant and what specific claims of trade secret misappropriation they must defend against.” Appx2343-2350. Coda did so. Appx6445-6646.

At trial, Judge Lioi instructed the jury on what Coda had to show to establish valid trade secrets, including Coda's burden to identify sufficiently definite trade secrets (Appx17873-17884), to show that the secrets were not generally known or readily ascertainable (Appx17874-17875), and to establish that Goodyear misappropriated the secrets (Appx17876-17877). She directed the jury to fill out a special verdict form that required it to apply these liability requirements separately to each trade secret. Appx17997-17998. However, she rejected Coda's request that she instruct the jury on the "reasonable royalty" method for calculating compensatory damages. Appx17854-17855.

The jury found that Coda had carried its burden to establish that seven of the asserted trade secrets were indeed valid, protected trade secrets, and that Goodyear had misappropriated five of these—the ones designated as Trade Secrets 7, 11, 20, 23, and 24. Appx17997-17998. After being instructed on punitive damages (Appx17886), the jury also found that Coda had proved by clear and convincing evidence that Goodyear acted with actual malice. Appx18001. The jury awarded \$2.8 million in compensatory damages and \$61.2 million in punitive damages. Appx18000-18001.

Next, the parties filed briefs in lieu of a bench trial to address the equitable issues remaining for decision by the court. These issues included Coda's claim for correction of inventorship, Coda's request for injunctive relief, and Goodyear's

assertion of laches as an affirmative defense to the trade secret claim. Goodyear also challenged the jury verdict through a motion for judgment as a matter of law under Federal Rule of Civil Procedure 50(b).

Judge Lioi granted Goodyear's motion and threw out the jury verdict. Appx2-31. She concluded that four of the five trade secrets that the jury found were misappropriated (trade secrets 24, 7, 11, and 20) were fatally indefinite as a matter of law and should never have been submitted to the jury in the first place. Appx11-26. She also found that all five secrets were also invalid because they existed in the prior art and, with respect to trade secrets 7, 11, 20, and 23, that Goodyear had never used them. Appx18-28. Finally, she found that trade secret 23 was not "secret" because Hrabal failed to mark the email in which he shared it with Goodyear "Confidential." Appx27-28.

Judge Lioi also stated that even if she had not ruled for Goodyear on liability, she would reduce the jury's punitive damages award from \$61.2 million to \$8.4 million under Ohio law's statutory punitive damages cap for trade secret claims. Appx28-30. She acknowledged, however, that "if any of the trade secrets had been definitive enough to be presented to the jury then there would have been sufficient evidence presented to the jury to support the jury's finding of actual malice." Appx28.

Judge Lioi issued a separate opinion resolving the equitable issues. Appx32-63. She denied Coda's inventorship claim and its injunction request. In a footnote, she added that while "laches need not be addressed" because she had already ruled for Goodyear, she "finds merit in Goodyear's assertion of this defense" because just under four years elapsed between when Coda learned of Goodyear's patents on Coda trade secrets and when Coda filed suit. Appx35. As this Court noted when it reversed Judge Lioi's pleading-stage dismissal of the trade secret claim on timeliness grounds, the statute of limitations is four years. 916 F.3d at 1361.

Coda appealed, bringing this case before this Court for the second time.

SUMMARY OF ARGUMENT

1. This Court should reinstate the jury's finding that Goodyear maliciously misappropriated five Coda trade secrets. The district judge threw that verdict out, mainly based on her conclusion that the "definiteness" of a trade secret is a question of law for the court and that, contrary to the jury's explicit findings, Coda's trade secrets were indefinite. The law is clear, though, that the existence of a trade secret is a question of fact, including the question of whether the information in question meets the "definiteness" requirement of trade secret law. Indeed, the Sixth Circuit has squarely held that, under OUTSA, "whether [a plaintiff] adequately specified what information related to its products are trade secrets" is a "fact question[]." *AtriCure, Inc. v. Jian Meng*, 842 F. App'x 974, 979 (6th Cir. 2021). In

any event, the five trade secrets that the jury found were misappropriated satisfy the definiteness requirement under any plausible standard. Goodyear's contrary arguments turn on wordplay while ignoring the detailed factual record that was before the jury. That factual record likewise supports the jury's finding that the five trade secrets met the other statutory requirements and that Goodyear misappropriated them.

2. After reinstating the jury's verdict on liability, this Court should remand for a new trial on damages based on Coda's "reasonable royalty" theory. The district judge only permitted the jury to assess Coda's damages based on its evidence of the "actual loss" that it suffered. And Goodyear argued that Coda could not establish substantial losses with the "reasonable certainty" required under the "actual loss" case law—largely for reasons attributable to Goodyear itself, which stole Coda's innovations but then killed the project in the wake of Coda's successful prior appeal to this Court, with the result that there is no historical record of sales of tires incorporating Coda's trade secrets. The jury ultimately awarded \$2.8 million in compensatory damages and \$61.2 million in punitive damages, making clear that it did not believe that the \$2.8 million in "actual loss" damages was adequate. Yet, unbeknownst to the jury, OUTSA restricts punitive damages to three times compensatory damages.

But OUTSA does provide an alternative solution, by expressly authorizing the jury to award damages on a “reasonable royalty” theory in cases where the evidence does not allow an adequate award based on the plaintiff’s actual loss or the defendant’s wrongful profits. The reasonable royalty metric requires the jury to estimate the value that the defendant placed on the trade secret at the time of misappropriation, thereby placing the risk that the secret would not ultimately lead to commercial success on the misappropriator rather than on its victim. Coda sought to present a reasonable royalty theory, but the district judge held that the evidence was insufficient for that theory to go to the jury. That was a serious error, for the evidence here is more than sufficient. Crucially, the trial evidence includes Goodyear’s own internal analysis, which valued Goodyear’s profits from the first five years selling self-inflating tires made with Coda’s trade secrets at some **\$411 million**—a far more concrete figure than in other cases where courts of appeals have upheld reasonable royalty awards. The evidence would clearly support a reasonable royalty award far in excess of the \$2.8 million that the jury awarded under an “actual loss” theory. Coda should be permitted to seek a reasonable royalty on remand.

3. This Court should also remand Coda’s equitable claims for injunctive relief and correction of inventorship. The district judge assessed the key evidence and witnesses in a manner diametrically opposed to the findings of the jury, which she disregarded because she had thrown out its verdict. Since the verdict must be

reinstated, the equitable claims must be remanded for the district court to reach a judgment consistent with the facts found by the jury.

4. This Court should disavow the district judge's footnote suggestion that Coda's claims may be barred by Goodyear's affirmative defense of laches. It is undisputed that Coda filed its claims within the statute of limitations. Indeed, Goodyear chose not to present a statute-of-limitations defense to the jury. Nor can Goodyear overcome the strong presumption against laches where a plaintiff files suit within the time limit set by the legislature, both because it cannot satisfy the elements of the defense and because its own unclean hands deprive it of recourse to the equitable defense. Additionally, the Court should make clear that the equitable defense of laches, even if it were meritorious here, would have no possible effect on Coda's legal claim for damages in any event.

5. Finally, this Court should order that the case be reassigned to a new judge on remand. The district judge's errors at the outset of this litigation necessitated Coda's first appeal and this Court's reversal of the district court's rulings. Yet the judge continued to make serious errors in rulings against Coda and to adhere to her previously expressed negative view of Coda and its supposed "gamesmanship." These errors necessitated this second appeal and require yet another remand and further trial proceedings on damages. The Court should now

order the case reassigned to preserve the appearance of justice and reduce the serious risk that a third appeal and remand will be necessary.

STANDARD OF REVIEW

“For nonpatent issues,” this Court “appl[ies] the law of the circuit in which the district court sits”—here, the Sixth Circuit. *Fujifilm Corp v. Benun*, 605 F.3d 1366, 1370 (Fed. Cir. 2010). The Sixth Circuit applies de novo review to questions of law, including matters of constitutional and statutory interpretation. *Consumers’ Research v. FCC*, 67 F.4th 773, 783 (6th Cir. 2023).

The Sixth Circuit reviews the grant of judgment as a matter of law “de novo, applying the same deferential standard as the district court: The motion may be granted only if in viewing the evidence in the light most favorable to the non-moving party, there is no genuine issue of material fact for the jury, and reasonable minds could come to but one conclusion, in favor of the moving party.” *Hurt v. Commerce Energy, Inc.*, 973 F.3d 509, 522 (6th Cir. 2020) (quotation marks omitted).

As for equitable matters tried to the district court, like the inventorship and laches issues in this appeal, the Sixth Circuit reviews the district court’s findings of fact for clear error, its equitable determinations for abuse of discretion, and its conclusions of law de novo. *Garza v. Everly*, 59 F.4th 876, 880 (6th Cir. 2023); *Mitchell v. Rees*, 651 F.3d 593, 595 (6th Cir. 2011).

ARGUMENT

I. The district court erred in throwing out the jury’s finding that five of Coda’s trade secrets were valid and had been misappropriated.

The jury found that five of Coda’s asserted trade secrets were valid trade secrets and had been misappropriated by Goodyear. Appx17997-17998. The district court threw out the verdict and entered judgment as a matter of law for Goodyear. Appx2-31. Because it viewed the question of whether Coda had defined the trade secrets with sufficient particularity as a question of law for the court, the court acknowledged that it was giving no deference to the jury’s finding that Coda satisfied that requirement. Appx11-26. The court proceeded to hold that four of the five trade secrets actually had *not* been defined with sufficient particularity. *Id.* It also held, though with little analysis, that no reasonable jury could find for Coda on certain other elements with respect to each of the five trade secrets. Appx18-28.

The district court erred at every step. *First*, the question of whether information constitutes a trade secret—including the question of whether the asserted secret has been defined with sufficient particularity—is a question of fact for the jury. *Second*, the five trade secrets meet that requirement under any plausible standard, as the jury found. *Third*, ample evidence supported the jury’s findings on the other elements of the claim. This Court, which reviews the district court *de novo* on all these issues, should reverse and reinstate the jury’s finding of liability.

A. Governing law

Coda's claim arises under OUTSA, which is Ohio's version of the Uniform Trade Secrets Act (UTSA). OUTSA's provisions "shall be applied and construed to effectuate their general purpose to make uniform the law with respect to their subject among states enacting them." Ohio Rev. Code § 1333.68. Thus, cases under other jurisdictions' UTSA's are highly relevant. *See Avery Dennison Corp. v. Four Pillars Enterprise Co.*, 45 F. App'x 479, 486 (6th Cir. 2002); *Caudill Seed & Warehouse Co. v. Jarrow Formulas, Inc.*, 53 F.4th 368, 381 n.2, 383-84 (6th Cir. 2022).

The elements of an OUTSA claim are "(1) the existence of a trade secret; (2) acquisition of the trade secret as the result of a confidential relationship or through improper means; and (3) an unauthorized use of the trade secret." *Novus Group, LLC v. Prudential Financial, Inc.*, 74 F.4th 424, 427-28 (6th Cir. 2023).

With respect to the first element, OUTSA defines "trade secret" as "information" that "derives independent economic value ... from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use" and that "is the subject of efforts that are reasonable under the circumstances to maintain its secrecy." Ohio Rev. Code § 1333.61(D).

Though the statutory text includes no such requirement, courts agree that "a trade-secrets plaintiff must 'defin[e] the information for which protection is sought

with sufficient definiteness to permit a court to apply the criteria for protection described in [the statute] and to determine the fact of an appropriation.” *Caudill Seed*, 53 F.4th at 380-81 (quoting Restatement (Third) of Unfair Competition § 39 cmt. d)). “The trade secret must be defined with ‘reasonable particularity,’” which “must be particular enough as to separate the trade secret from matters of general knowledge in the trade or special knowledge of persons skilled in the trade.” *Id.* at 381 (quotation marks omitted). This requirement is variously referred to in the case law as “definiteness,” “particularity,” “concreteness,” or “specificity.”

B. The “definiteness” of a trade secret is a fact question for the jury.

The district court erred at the outset by holding that the question of whether a trade secret has been defined with sufficient particularity is a question of law for the judge. Appx14 (“the question of definiteness is one for the Court to make”).

As noted above, the definiteness requirement is an aspect of the first element of a trade secret claim, which asks whether the plaintiff has established “the existence of a trade secret” or, put differently, whether the information in question satisfies the law’s requirements to receive trade secret protection. And “[w]hether information constitutes a trade secret [under OUTSA] is a question of fact.” *AtriCure*, 842 F. App’x at 979 (quoting *In re Review of Alternative Energy Rider Contained in Tariffs of Ohio Edison Co.*, 106 N.E.3d 1, 9 (Ohio 2018)); see *Caudill Seed*, 53 F.4th at 381. It follows that definiteness is a question of fact for the jury.

The Sixth Circuit said as much explicitly when applying OUTSA in *AtriCure*: “The key disputes are *whether AtriCure adequately specified what information related to its products are trade secrets*, and whether AtriCure proffered evidence to show that [the defendant] received and used the trade secrets. *These are fact questions.*” 842 F. App’x at 979 (emphases added). Thus, the determination “that the enumerated pieces of information were sufficiently specific trade secrets” was a “factual finding[],” just like the finding that the defendant acquired and used the trade secrets. *Id.* at 979-80. And, as factual findings, the factfinder’s determinations were entitled to deference from the court. *See id.* at 980-81. Since this Court follows Sixth Circuit law on this non-patent issue, *AtriCure* is dispositive.

Other precedents confirm the point. In *Caudill Seed*, as in this case, the jury found the defendant liable and the defendant sought judgment as a matter of law. 53 F.4th at 377-78. The “main event” on appeal was “whether Caudill defined Trade Secret 1 with ‘sufficient definiteness’ at trial.” *Id.* at 379. In addressing that “reasonable particularity” issue (*id.* at 380-82), the Sixth Circuit held that “[w]hether a particular type of information constitutes a trade secret is a question of fact.” *Id.* at 381. It affirmed the jury verdict because “[s]ubstantial evidence presented at trial” supported it on the reasonable particularity issue. *Id.* Holding that “Caudill sufficiently defined Trade Secret 1 at trial,” the Sixth Circuit concluded: “The jury agreed, and evidence presented at trial supports the jury’s finding.” *Id.* at 382

(brackets and quotation marks omitted). The Sixth Circuit rejected the defendant's argument that "Caudill failed to define its trade secret properly," because trial testimony supported Caudill and "[t]he jury could credit this and similar testimony to understand Trade Secret 1 as containing all of Caudill's process, regardless of [the defendant's] contentions that Caudill concealed Trade Secret 1's true definition." *Id.* Like *AtriCure, Caudill Seed* expressly treats definiteness as an issue of fact to be resolved by the jury and reviewed deferentially. *See also id.* at 383.

While Sixth Circuit precedent is controlling here, further confirmation comes from this Court's decision in *Olaplex, Inc. v. L'Oréal USA, Inc.*, 855 F. App'x 701 (Fed. Cir. 2021). The jury there "returned a verdict for plaintiffs," finding that Olaplex "possessed specific, identifiable Trade Secret(s)." *Id.* at 703. This Court noted that "[w]hether a trade secret exists is generally a question of fact" and therefore reviewed the jury's conclusion under the deferential "no reasonable jury" standard. *Id.* at 705-06. *Olaplex* confirms that trade secret particularity at the Rule 50 stage is a jury question. *See also Inteliclear, LLC v. ETC Global Holdings, Inc.*, 978 F.3d 653, 660 (9th Cir. 2020) (applying DTSA and California UTSA) ("We hold that there is at least a genuine dispute as to whether Inteliclear was successful in identifying at least one trade secret with sufficient particularity. ... [T]he case must go to the jury." (quotation marks omitted)).

The district court did not spell out its reasoning on whether “reasonable particularity” is a question of fact or of law. *See* Appx14, Appx15301. Apparently the court was persuaded by Goodyear’s argument that “there are at least three bases from which to determine who decides the definiteness question, and each supports that the Court should decide.” Appx14977. All three are wrong.

First, Goodyear urged that *Olaplex* “endorsed the propriety of the court deciding the issue.” *Id.* That is true but misleading: As just shown, this Court merely endorsed the propriety of the court deciding this issue *under the highly deferential “no reasonable jury” standard* that courts apply to *all* findings of fact by juries. That ruling supports Coda, not Goodyear. So do the Sixth Circuit’s decisions in *AtriCure* and *Caudill Seed*, which (unlike *Olaplex*) are controlling here.

Second, Goodyear stated that the district court’s discovery rulings “requiring a particularized, definite list of trade secrets align with trade secret law, and a trial court decides whether a party failed to comply with its discovery orders, and may impose sanctions for any such failure, including striking claims in whole or in part.” *Id.* (citing Fed. R. Civ. P. 37(b)(2)(A) and a case about “sanction[ing] parties who fail to comply with discovery orders”). But the district court did not strike Coda’s claim as a discovery sanction under Rule 37(b)(2)(A), so no such ruling is before this Court. And while a court’s discovery rulings necessarily depend on the court’s

view of the facts, it does not follow that the court's view of the facts prevails over the jury's at the post-trial stage.

Indeed, Goodyear's argument would leave no role for the jury in any case. A district court may assess virtually *any* fact issue in the discovery context, such as by ruling that a given claim is too factually weak to justify further costly discovery or, as here, ordering a plaintiff to answer an interrogatory with more detail to enable the defendant to put together its defense. There is nothing unique about trade secrets in this regard. A plaintiff in a simple personal injury case could be asked by interrogatory for his account of the accident or of his injuries. And the court could compel a more detailed response. The court could then assess compliance with its order and sanction any violation. But none of this would turn the elements of a negligence case into questions of law for the court to decide *at trial*.

Third, Goodyear argued that *patent* indefiniteness is generally a question of law. Appx14978. But the classes of intellectual property—patents, copyrights, trademarks, and trade secrets—differ in many respects, and the definiteness requirement in patent law does not parallel the trade secret requirement that is sometimes called by that name (and sometimes instead called “particularity” or “specificity”). Goodyear itself argued in the same brief that trade secret law is “unlike patent law” in other respects. Appx14976. Certainly the tenuous analogy to patent law cannot override the clear statements of the Sixth Circuit.

C. The jury reasonably found that Goodyear misappropriated five Coda trade secrets.

Considered under the appropriate “no reasonable jury” standard, the jury’s finding that Coda adequately defined the five misappropriated trade secrets must stand. Indeed, even if the question were a legal one for the court, the evidence at trial satisfies the particularity requirement. As for the district court’s other grounds for granting the Rule 50(b) motion, the court acknowledged that those grounds are subject to the “no reasonable jury” standard. Appx18-28. Under that standard, the court’s ruling must be reversed and the verdict reinstated.

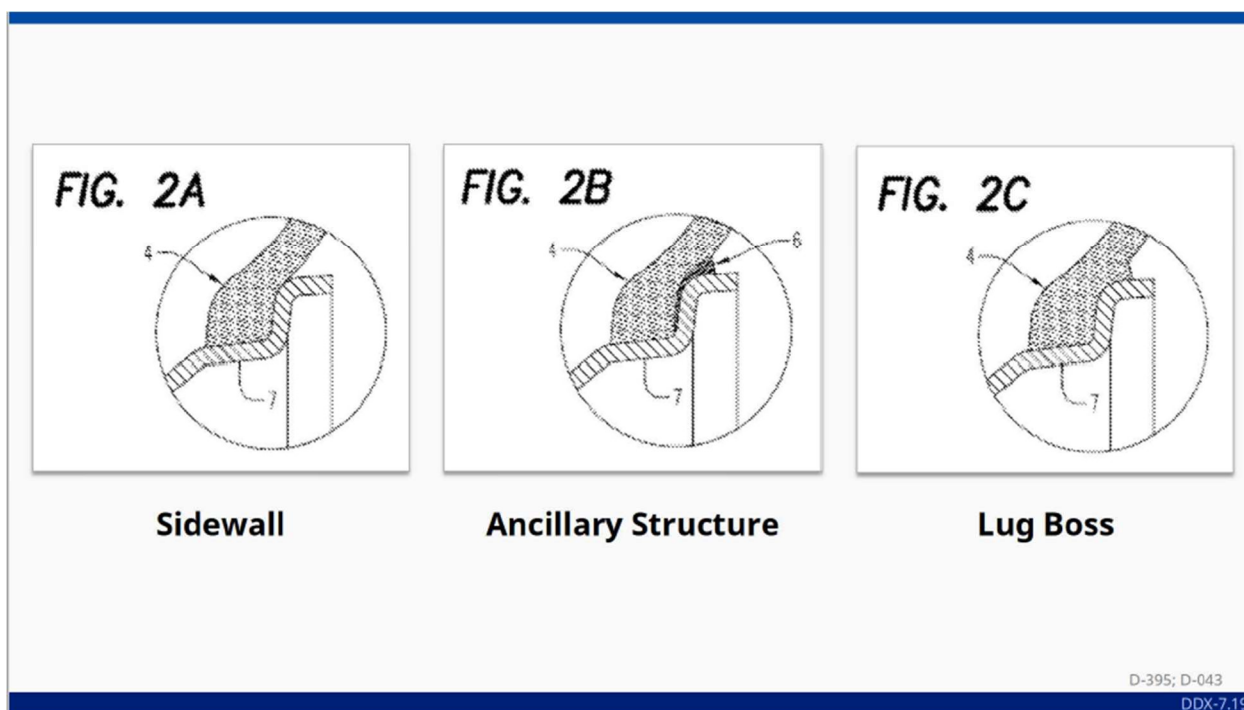
1. Trade Secret 24

The trade secret designated as Trade Secret 24 covers Hrabal’s insight that the optimal location for a self-inflating tire’s pump is in the tire sidewall close to and above the rim where the tire cyclically deforms in response to deformation. Appx17881-17882. Goodyear’s strategy at trial was to conflate TS 24 with an earlier innovation that Hrabal published and argue that TS 24 is indefinite and non-confidential. But as Coda explained and as the jury understood, Goodyear’s word games notwithstanding, the earlier innovation placed the pump in a distinct place in the tire from TS 24, which represented a major (and confidential) advance.

TS 24 places the pump in the tire sidewall close to, and above, the rim. Hrabal’s earlier innovation, by contrast, placed the pump in a “flap” located between the tire and the wheel rim—for instance, in a separately inserted “flap” between the

tire and the rim or in a “lug boss” built into the tire at that same location. As the jury found, Coda distinguished TS 24 from the “flap solution,” showing that they place the pump in different parts of the tire.

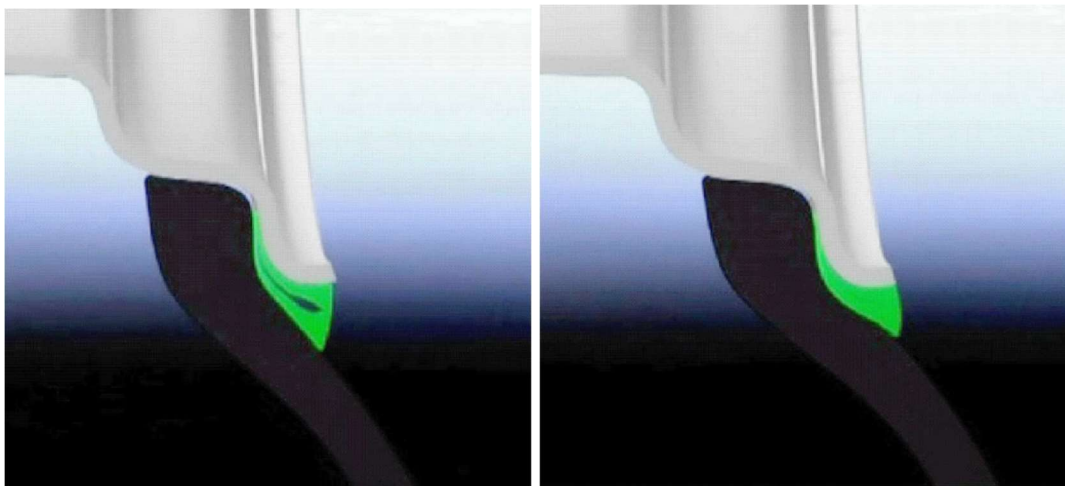
Goodyear’s own trial demonstrative clearly illustrates, with depictions of the cross-section of a wheel rim and tire, the distinction between an ordinary tire (Figure 2A) and a tire with a flap (2B) or lug boss (2C) between the rest of the tire and the rim.



Appx24873.

As Hrabal testified, he first developed the “flap solution” that “allows you to insert the peristaltic pump between the tire and the rim.” Appx15493. Because the flap was placed between the tire and the rim, Hrabal explained, “this pump is being

crushed against the rim by the tire motion” as the vehicle drives, pumping air through the pump as in this figure. *Id.*



Appx21643-21644.

Hrabal learned, however, that the flap solution was not marketable to tire manufacturers because rims vary in ways that can hurt the pump’s performance. Appx15496-15498. It therefore made “more sense” to offer a solution that would not depend on the rim. *Id.* This new solution was a pump in the tire sidewall itself where the tire cyclically deforms, and where it would be “pinched by ... both sides of the tire” as opposed to between the tire and the wheel rim. Appx15493-94, Appx15498. Hrabal conducted years of research and development to find this optimal location, which, Hrabal testified, is his TS 24. Appx15561, Appx15466-15569, Appx15450-15451. This TS 24 location was memorialized in the following drawing. Appx15474-15476, Appx15485-15486, Appx23674-23749.

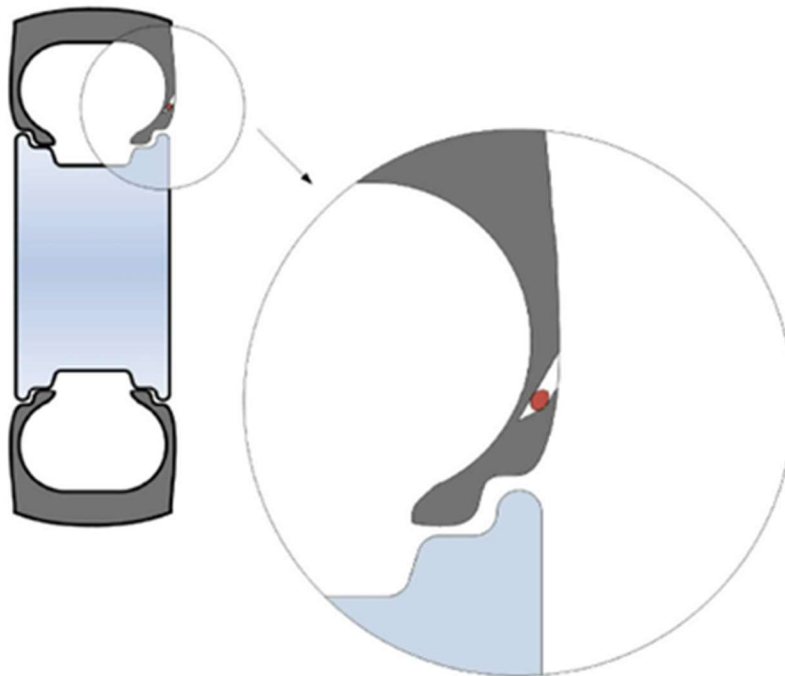


Figure 3-1. SIT Embodiment 1: Within Tire

Appx23688. The jury was entitled to credit this testimony to understand TS 24 and find that it was sufficiently definite. *See Caudill*, 53 F.4th at 382.

Goodyear argued that TS 24 was publicly disclosed in two earlier publications by Coda and Hrabal: a 2007 Patent Cooperation Treaty (PCT) application (Appx23424-23468) and a 2008 article (Appx23863-23867). As Hrabal explained, however, those publications disclosed the flap solution, not the TS 24 solution. Appx15493-15494, Appx15498, Appx15951-15958.

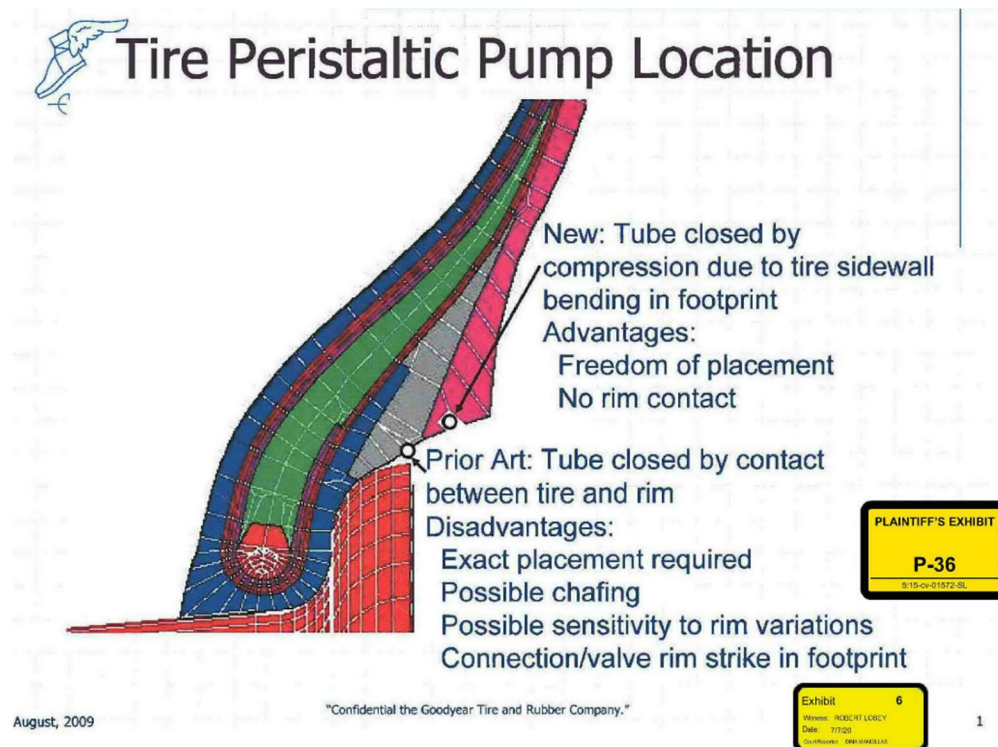
Goodyear's case rested on its attempt to conflate the flap solution and TS 24 by taking snippets of testimony out of context. Goodyear argued that both innovations place the pump in the tire sidewall near and above the rim and are therefore one and the same. But Hrabal made clear to the jury that a "lug boss" is

not part of a conventional tire sidewall. Rather, a lug boss is an additional layer of rubber added to the outside layer of the sidewall “so it forms the new sidewall location between the tire and the rim.” Appx15748. Only in this sense could the lug boss be considered “part of the tire sidewall.” *Id.* The flap solution, whether implemented as a separate “ancillary” piece (as in Figure 2B of Appx24873, above) or as a rubber “lug boss” attached to the tire (Figure 2C) was always *located in between the tire and the wheel rim and reliant on the rim to actuate the pump.* As Hrabal testified, “[w]ithout this crush against the rim, it will not seal.” Appx15953. This was the solution that was publicly disclosed. And TS 24 is “simply a different location.” Appx15494.

Goodyear’s counsel tried to get Hrabal to testify that the flap solution was “near and above the rim,” rather than “on the rim,” in an effort to conflate it with TS 24. Despite numerous questions to that effect, however, Hrabal made clear over and over that the flap solution required the force of the rim itself to actuate the pump, and thus was “on the rim.” Appx15784, Appx15785 (“It’s within this structure. The structure is sitting on the rim.”), Appx15791 (“The lug boss needs to be on the rim. It’s needs to be on the rim. It’s between the tire and the rim, and that’s the place for the lug boss. ... The lug boss itself is on the rim, yes.”), Appx15792 (“Lug boss is on the ri[m].”), *id.* (same), *id.* (“Lug boss is sitting on the rim.”), *id.* (same). The

jury was entitled to credit this testimony and understand the distinction between the prior art and TS 24.

Indeed, the jury heard that *Goodyear itself* repeatedly distinguished between Coda's prior-art flap solution and the sidewall location where the pump did not rely on the rim to actuate it (i.e., TS 24, which Goodyear and Benedict misappropriated). Defendant Benedict's August 2009 invention disclosure uses the tire cross-section image below to contrast the two locations, describing the one where the pump tube is "between tire and rim" as "prior art" and the one where the "Tube [is] closed by compression due to tire sidewall bending," with "No rim contact," as "new." Appx20800.



Id.; see also Appx15470-15471.

Similarly, a 2010 memorandum by the Goodyear engineer that Benedict assigned to study the TS 24 location distinguishes Coda's prior-art "tube located between the [tire] & rim" from the "brand new concept that utilizes the cyclic deformations of a lower side wall," noting that the old "rim crush concept is impractical due to the lack of robustness accommodating the real world tire & rim variations" while the new sidewall location "not only circumvents this problem but makes the self inflating tire concept reasonably closer to practical reality. Appx21767-21769. In other words, TS 24 was novel and valuable.

And, as shown in the figure below, Goodyear's application to the U.S. Department of Energy seeking federal funding for its program likewise references Coda's prior-art flap solution as relying on rim crush in an effort to distinguish what Goodyear claimed was its brand-new pump tube location—i.e., Coda's TS 24. *See* Appx21661. The application states that the concept was "innovative due to the placement of the peristaltic pump. Prior peristaltic pump efforts (e.g. CODA [in the 2007 PCT application]) rely on the rim flange to provide a pinch point," so "variations [in the rim] can render the pump inoperable. ... The difference between prior art and the [Goodyear] proposal is given in Figure 3 [below]. We believe that this innovative pump location results in a solution that is more robust." *Id.*

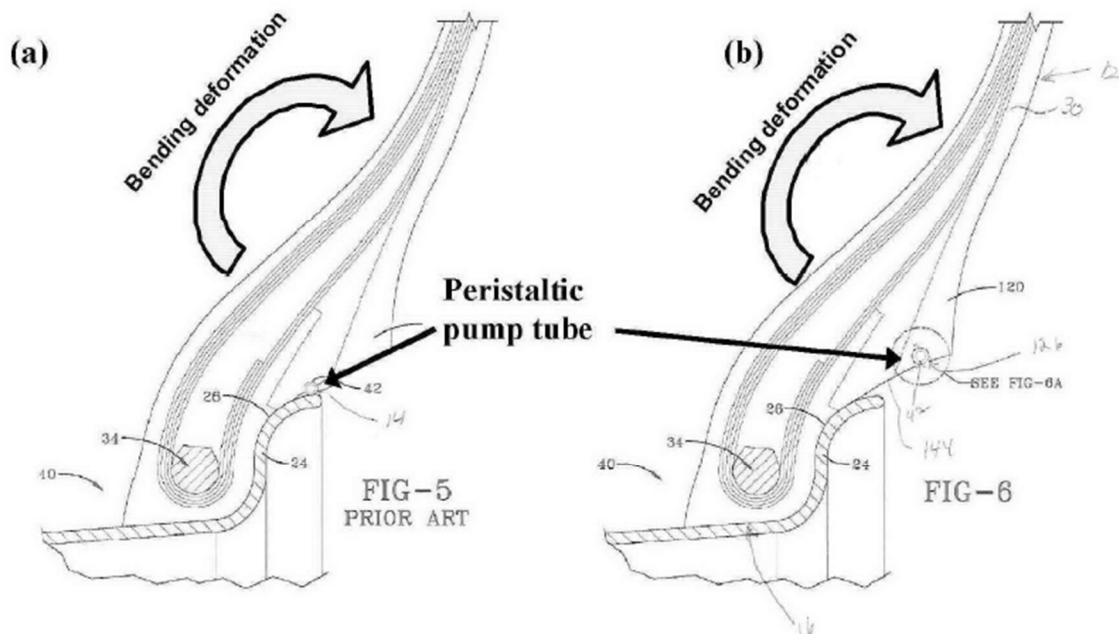


Figure 3: Difference in peristaltic pump location between (a) prior art and (b) AMT proposal

Id.; see also Appx15472-15473.

The jury was entitled to credit all this evidence of how *Goodyear itself* capitalized on the distinction and thus to find that TS 24 was a valid trade secret not disclosed in the prior art. See also Appx15492-15494, Appx16729-16730 (distinctions between TS 24 and Coda's 2007 PCT application).

At bottom, Goodyear's argument turns on wordplay. It asserts that the term "tire sidewall" can be understood broadly to encompass a lug boss and that Coda's prior-art publications therefore disclosed TS 24. But Coda explained that TS 24 puts the pump tube in the sidewall of a "standard tire ... as they look today," as shown in Figure 2A of the Goodyear demonstrative above, rather than in an added flap or lug boss on the rim. Appx15956-15958. It is common for a given term to bear both an

expansive meaning and a narrower one that excludes parts of the more expansive one—like “drink” being used to refer to all beverages or only to alcoholic ones. Goodyear’s questioning on this point was like asking a bartender, “You’re telling me that water is not a drink?” The jury was entitled to accept Coda’s distinction between the flap solution and TS 24. The district judge’s contrary ruling—based on her erroneous view that trade secret definiteness is a question of law (Appx16-18)—should be reversed.

2. Trade Secret 7

Trade Secret 7 covers the “interface” in Coda’s design—that is, the passage where the end of the peristaltic pump tube connects to the inside of the tire such that air can enter the tire from the pump tube. Appx17879. The district judge held that TS 7 is indefinite because Coda’s interrogatory description of the secret used so-called “functional terms” in identifying its details. Appx19-20. But Hrabal explained the secret’s specific value when he testified that Coda’s secret multi-purpose interface allows for integration of separate functions into a single unit (Appx15559-15561), reducing part counts for self-inflating tire products and allowing anchoring of a regulator to combat high centrifugal forces within a tire (Appx15591). The jury was entitled to find that TS 7 is sufficiently definite.

Alternatively, the district court reasoned (with little elaboration) that “there is no evidence of use or disclosure by Goodyear” of TS 7 because the testimony of

Coda’s expert “fails to identify all ten of the claimed functions in Goodyear’s supposedly offending patent.” Appx21. But, as the jury was instructed (Appx17877), “[t]he unauthorized use need not extend to every aspect or feature of the trade secret; use of any substantial portion of the secret is sufficient.” Restatement (Third) of Unfair Competition § 40 cmt. c; see *Caudill Seed*, 53 F.4th at 385 (“We begin by considering—and rejecting—[defendant’s] argument that trade-secrets law requires showing acquisition of each atom of a combination trade secret”); *Mangren R&D Corp. v. National Chemical Co.*, 87 F.3d 937, 944 (7th Cir. 1996) (protection extends to “products that are substantially derived from the trade secret”). The jury was entitled to credit evidence including the expert testimony that “Goodyear patented a configuration that is essentially a concept of [TS 7’s] concept”—a “perfect knock-off of that technology.” Appx16248-16250.¹

3. Trade Secret 11

Trade Secret 11 covers considerations for designing the groove of a tube-in-groove-type self-inflating tire. Appx17879-17880. The district judge ruled that TS 11 is indefinite and, in the alternative, that “there is neither evidence of secrecy on Hrabal’s part nor of use/disclosure by Goodyear of Hrabal’s eight-element solution

¹ In a footnote, the district judge added that Goodyear “argues in its reply brief that TS 7 is not secret and the [sic] ‘Coda offers nothing to the contrary in its opposition.’ Presumably, Coda concedes this point.” Appx21 (citation omitted). There plainly was no such concession. See Appx18674-18675.

... Nor does Coda refute Goodyear’s argument that Hrabal testified that he disclosed only one of the eight elements in TS 11 (the second one) and also admitted that this one element was in his prototype.” Appx23; *see also* Appx21-23. The jury’s contrary findings should be reinstated.

TS 11 is definite. Appx17879-17880, Appx6469. It covers:

Coda’s knowledge of how to design and develop self-inflating tire pump and groove solutions, consisting of [1] round pump tubing in an outward-facing groove with straight, angled interior geometry; [2] pump tubing with geometry that interlocks with its seat; [3] pump tubing with elliptical interior cross-section; [4] variant pump tube, groove and chamber dimensions, size and materials; [5] pump tube and groove design to minimize internal friction; [6] a “tubeless” pump solution, (*i.e.*, a pump that may compose an integral part of tire); [7] cross-section designs that minimize stress on compression in order to improve durability; and [8] tubing with [reinforced] wall.

Id. (numbering added). Moreover, Hrabal testified at length about a key hurdle he overcame—the problem of the pump tube “walking away.” Appx15565-15567, Appx15590-15591, Appx15595, Appx15767.

Goodyear used and disclosed substantial aspects of TS 11 in its patents (Appx16763, Appx80-81, App71-75, Appx20017-20100 (disclosing “passageway” pump, *i.e.*, a tubeless solution)); in its Department of Energy grant application (Appx16766-16767, Appx21664 (“an elliptical cross section was easiest to pinch”)); and in its AMT project (Appx20163, Appx20257 (Figure 5-1), Appx22193, Appx22262 (Figure 5-2) (AMT Built-In project report showing tubeless solution)).

The district judge's conclusion that "Hrabal testified that he disclosed only one of the eight elements in TS 11 (the second one)" (Appx23) distorts the referenced testimony, where Hrabal described "one of the examples" of what he disclosed without suggesting that it was the only one, and ignores relevant testimony discussing, for example, Hrabal's disclosure of solutions to the "walking away" problem (Appx15595, Appx15590-15591, Appx15589-15590, Appx15565-15567), the June 2009 meeting (Appx17417), and the tubeless solution and different pump lengths (Appx15524-15525, Appx15562-15563, Appx15593-15594, Appx15932-15933, Appx15940-15941), as well as the fact that the jury was shown the entirety of the trade secret (Appx25002) while Hrabal was testifying about it. *See* Appx15555, Appx15565-15566, Appx15613. Hrabal gave examples of what the trade secret relates to and specifically mentioned that it is shown in the bullet points on the jurors' screens. *See* Appx15565-15566. Sufficient evidence supports the jury's verdict.

As for secrecy, Hrabal testified about the years and resources he spent developing the trade secrets and the efforts he took to keep them secret. Appx15501, Appx15584, Appx15672, Appx15674. The judge dismissed this as insufficient to "pinpoint evidentiary proof as to the secrecy of TS 11 in particular." Appx23. But there is no requirement that secrecy be proved through separate testimony for each secret rather than general testimony by the inventor that he keeps his secrets

confidential. Finally, the judge's statement that Hrabal "admitted that this one element was in his prototype" (Appx23) ignores that the prototype alone does not disclose the trade secrets without the explanations that Hrabal provided to Goodyear under their NDA. Appx15730-15731, Appx15469-15470, Appx15465-15466, Appx17417, Appx16249-16251, Appx15531-15532.

4. Trade Secret 20

Trade Secret 20 concerns the design considerations for constructing the overall assembly for a self-inflating tire. Appx17880-17881; Appx24 (quoting Appx6470). The district court held that TS 20 is indefinite and that there is "no evidence" either that Hrabal disclosed it to Goodyear or that Goodyear used it. Appx24-26. This was error.

TS 20 compiles aspects that were secret at the time of the 2009 meetings (such as recirculation through the pump tube) along with non-secret aspects (such as dead volume). One overall approach for designing a self-inflating tire is through the use of recirculation. Another uses a non-recirculating system (i.e., a dead volume or dead space). Hrabal testified about both. Appx15515-15516, Appx15560, Appx15597. He also testified about his development and observations, valves, and pressure regulation. Appx15515-15516, Appx15528, Appx15541-15542, Appx15593-15594, Appx15597, Appx15835. The jury reasonably found that TS 20 is a definite trade secret. *See also* Appx15583.

Hrabal and another witness testified about the secret nature of TS 20. *E.g.*, Appx15550, Appx15583. The district court reasoned that testimony “regarding some—but not all—of the seven required elements of TS 20 ... is insufficient to prove secrecy as to the entire combination.” Appx25. The court was factually mistaken. *See* Appx15541 (discussing circulation and three-way valve), Appx15597 (same), Appx15621 (identifying disclosure in Goodyear patent), Appx15671, Appx15832, Appx16737-16738. And, legally, trade secret protection applies to a unique *combination* even if *none* of the elements is itself secret: “Because all of a combination trade secret’s elements may individually be publicly known, the uniqueness of the combination is critical to establishing trade-secret protection.” *Caudill Seed*, 53 F.4th at 380. Naturally, if some elements are *not* publicly known (as the district court apparently acknowledged), then the combination that encompasses them will be unique.

Finally, Hrabal shared TS 20 with Goodyear through his explanations and demonstrations during their visual inspection of Coda’s prototype pressure regulating valves (Appx23659, Appx23660), which valves Goodyear disassembled and inspected during the June 2009 meeting and to which the jury had access during its deliberations. Appx15595-15596, Appx17413-17414. And, despite having no “know-how” about pressure management (Appx21976-21978, Appx16761-16762), Goodyear used both the dead space and the recirculation concepts in its patents and

AMT project, further confirming both disclosure and use. Appx15621, Appx16762-16763.

5. Trade Secret 23

Trade Secret 23 concerns Coda's testing of its self-inflating tire innovations and the results of those tests. Appx17881; Appx26. Hrabal invested time and money to build testing rigs (Appx23505), special wheels (Appx23506) to learn how tires behave and the efficacy of his pump tubes, and a wireless sensor system (Appx23470-23500) to gather testing data. Appx15501-15511, Appx15512-15513, Appx15517-15520. Hrabal's testing gave concrete confirmation of the success of his innovation. Appx15546-15547. It is undisputed that TS 23 meets the definiteness requirement. Appx26-27. But the district judge apparently agreed with Goodyear's arguments that no reasonable jury could find that Coda kept TS 23 secret or that Goodyear used it. Appx27-28.

As for secrecy, Goodyear argued that an email in which Hrabal conveyed TS 23 to Goodyear "was not marked 'confidential,' which the non-disclosure agreement between the parties required." Appx27. But the claim at issue here is for violation of OUTSA, not for breach of the NDA. *See Thermodyn Corp. v. 3M Co.*, 593 F. Supp. 2d 972, 982 (N.D. Ohio 2008) ("Trade secret is defined by law, not by the parties to a contract."); Appx17877. OUTSA merely requires that a trade secret be "the subject of efforts that are reasonable under the circumstances to maintain its

secrecy.” Ohio Rev. Code § 1333.61(D). It does not require perfect compliance with an NDA; it does not even require that there be an NDA in the first place. The district judge insisted that “Coda has consistently relied upon the non-disclosure agreement and it cannot now disregard one of its key requirements.” Appx28. This reasoning is illogical. The fact that the use of NDA provides evidentiary support for certain elements, such as secrecy, does not imply that the failure to follow a term of the NDA in a single instance disproves secrecy as a matter of law, regardless of the other evidence. The jury heard all the relevant evidence and reasonably concluded that Coda satisfied the secrecy requirement. Appx15671-15674, Appx16727, Appx16873, Appx16875.

The district judge added that “it appears clear that TS 23 actually reveals no secret at all,” because “the concept of a self-inflating tire was not new” and “TS 23 is merely a bald declaration that Coda developed such a tire that is ‘functional.’” Appx28. This is plainly erroneous. TS 23 relates to confidential numerical testing results showing that Coda’s self-inflating tire solutions could pump pressures sufficient to inflate both consumer and commercial truck tires. Appx15546-15547, Appx155844. The jury heard that prior to Coda disclosing this trade secret to Goodyear, the industry expressed skepticism of the technical feasibility of self-inflating tires using peristaltic pumps or that a market even existed for them. Appx15536-15537. Indeed, a significant portion of the January 2009 meeting

between Coda and Goodyear was dedicated to explaining the market potential for self-inflating tires to Goodyear's marketing team, and Goodyear's own engineers expressed skepticism. Appx15536-15537, Appx15539-15540. Technical proof of the ability to inflate commercial truck tires provided reassurance for the possibility of quickly capturing a large market share in the commercial truck tire market. Appx15539-15540. The jury heard this evidence and concluded that TS 23 was in fact a trade secret.

The district judge also apparently accepted Goodyear's argument that there was no evidence of "use" beyond "an email ... that disclosed a single test result ... that ... does not even match the prototype test result in TS 23." Appx27. But numerous other reasonable inferences support the jury verdict. Specifically, Coda's testing results gave Goodyear further reason to believe in the technology—so much so that it "[i]nitiate[d] next steps from a technology point of view" just one week after receiving Hrabal's test results and internally confirmed that the project was a "GO" less than two months later, all without having conducted any testing of its own. Appx22170-22171. Indeed, Goodyear did not even have a prototype of any kind at this early stage of its program. Appx16075, Appx17071, Appx21192-21193. The jury was entitled to infer that Goodyear relied heavily on Coda's testing data. Finally, it is irrelevant that the specific testing results described in an email and those in TS 23 do not exactly match, because Hrabal testified that he disclosed TS 23 to

Goodyear, and Goodyear plainly relied on Coda's testing data. Appx15546-15547, Appx15584.

* * *

This Court should reinstate the verdict finding Goodyear liable for trade secret misappropriation.

II. The district court erred in rejecting Coda's "reasonable royalty" theory of damages.

At trial, Goodyear sought Rule 50(a) judgment as a matter of law on Coda's "reasonable royalty" theory of damages. Appx16802. The judge granted that aspect of the Rule 50(a) motion from the bench. Appx17854-17855. As a result, the jury was only allowed to award damages on an "actual loss" theory.

This Court reviews the Rule 50(a) ruling de novo. *Karam v. Sagemark Consulting, Inc.*, 383 F.3d 421, 426-27 (6th Cir. 2004). "District courts should grant judgment as a matter of law only if a complete absence of proof exists on a material issue in the action, or if no disputed issue of fact exists on which reasonable minds could differ." *Id.* at 427 (quotation marks omitted). Here, the law clearly authorizes reasonable royalty awards, and the evidence at trial was more than sufficient to support such an award. This Court should remand for a new damages trial in which Coda could ask the jury to award a reasonable royalty.

A. Trade secret law authorizes the award of a reasonable royalty based on the value of the secret to the defendant at the time it was stolen.

The statutory text and case law make clear that a reasonable royalty award should be available as an alternative to actual loss and defendant's profits in cases where those measures do not result in an equitable award. OUTSA expressly authorizes damages based on (1) the plaintiff's actual loss, (2) the defendant's unjust gain, or (3) a reasonable royalty method:

Damages may include both the actual loss caused by misappropriation and the unjust enrichment caused by misappropriation that is not taken into account in computing actual loss. In lieu of damages measured by any other methods, *the damages caused by misappropriation may be measured by imposition of liability for a reasonable royalty that is equitable under the circumstances* considering the loss to the complainant, the benefit to the misappropriator, or both.

Ohio Rev. Code § 1333.63(A) (emphasis added).

The leading case on reasonable royalty awards in trade secret cases is *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518 (5th Cir. 1974). The Sixth Circuit follows *University Computing*, including in OUTSA cases. *See, e.g., Mid-Michigan Computer Systems, Inc. v. Marc Glassman, Inc.*, 416 F.3d 505, 510-12 (6th Cir. 2005); *Avery Dennison Corp. v. Four Pillars Enterprise Co.*, 45 F. App'x 479, 486 (6th Cir. 2002).

University Computing explains the three methods for measuring damages for trade secret misappropriation. *See* 504 F.2d at 535-39. The plaintiff there could not prove a "specific injury" (i.e., actual loss). *Id.* at 536. And, "[b]ecause the

defendants failed in their marketing efforts, no actual profits exist[ed]” that could be disgorged. *Id.*

Nonetheless, the Fifth Circuit held that “the lack of actual profits does not insulate the defendants from being obliged to pay for what they have wrongfully obtained in the mistaken belief their theft would benefit them.” *Id.* “[T]he defendants must bear the risk of failure [of their wrongful venture] themselves.” *Id.* Therefore, “the law looks to the time at which the misappropriation occurred to determine what the value of the misappropriated secret would be to a defendant who believes he can utilize it to his advantage.” *Id.*

This is the “reasonable royalty” approach. The Fifth Circuit drew it from an earlier Sixth Circuit case, *Egry Register Co. v. Standard Register Co.*, 23 F.2d 438 (6th Cir. 1928). *Egry*, as quoted by *University Computing*, explains:

To adopt a reasonable royalty as the measure of damages is to adopt and interpret, as well as may be, the fiction that a license was to be granted at the time of beginning the infringement, and then to determine what the license price should have been. In effect, the court ... creates and applies retrospectively a compulsory license. ... [T]he primary inquiry ... is what the parties would have agreed upon, if both were reasonably trying to reach agreement.

University Computing, 504 F.2d at 537 (quoting *Egry Register*, 23 F.2d at 443); see also *Mid-Michigan Computer*, 416 F.3d at 510 (same).

A “reasonable royalty” can be a lump-sum fee for a compulsory license and need not be a “running royalty” applied to actual sales: “While in certain cases the

reasonable royalty would be a percentage of profits on actual sales,” courts reject “the view that this need be the measure in all cases.” *University Computing*, 504 F.2d at 540.

Following *University Computing*, the Sixth Circuit’s rule for OUTSA cases is that, “because the precise value of a trade secret may be difficult to determine, ‘the proper measure is to calculate what the parties would have agreed to as a fair price for licensing the defendant to put the trade secret to the use the defendant intended at the time the misappropriation took place.’” *Mid-Michigan Computer*, 416 F.3d at 510-11 (quoting *University Computing*, 504 F.2d at 539); see *Avery Dennison*, 45 F. App’x at 486 (same).

The reasonable royalty measure exists for cases—like this one—where recovering adequate damages under an “actual loss” theory is difficult or impossible. In this case, Coda’s “actual loss” theory was based on the profits that it would have made on tires that would have been manufactured and sold if not for Goodyear’s misappropriation. But Goodyear argued that, since there had not in fact been any sales, Coda’s projected sales figures were unduly speculative and Coda could not establish its losses caused by Goodyear’s wrongdoing with the requisite “reasonable certainty.” See, e.g., *Allied Erecting & Dismantling Co. v. Genesis Equipment & Manufacturing, Inc.*, 511 F. App’x 398, 403 (6th Cir. 2013). The jury’s award of substantial punitive damages—more than *twenty times* the compensatory damages

awarded—shows that the jury understood that compensatory damages under an “actual loss” theory were insufficient to compensate Coda and punish Goodyear. The remedy of a lump-sum “reasonable royalty” based on a hypothetical transaction exists for cases like this one, where the defendant’s wrongdoing has made it practically impossible to establish adequate actual loss damages with certainty.

A jury has broad discretion in awarding a reasonable royalty. In particular, when the jury awards a reasonable royalty, “[t]he sole question [for the court] is whether, viewing the evidence in the light most favorable to [the plaintiff],” the award “constitutes a *clearly excessive estimation* of what [the defendant] would have paid.” *Mid-Michigan Computer*, 416 F.3d at 511 (emphasis added; citation and quotation marks omitted). This is a “deferential standard.” *Id.*

Because the reasonable royalty approach calls on the jury to estimate the licensing fee that the parties would have agreed to in a hypothetical scenario where the defendant followed the law, a degree of speculation is inherent in any reasonable royalty award. That is not a valid reason to rule out such an award. To the contrary, “[w]here the damages are uncertain, ... that uncertainty should [not] preclude recovery; the plaintiff should be afforded every opportunity to prove damages once the misappropriation has been shown.” *University Computing*, 504 F.2d at 539. “[E]very case requires a flexible and imaginative approach.” *Id.* at 538. “The plaintiff fulfills its burden of proving damages by showing the misappropriation

[and] the subsequent commercial use, and introduc[ing] evidence by which the jury can value the rights the defendant has obtained.” *Id.* at 545. “While a certain amount of speculation is involved in this highly theoretical reconstruction of a sale which never took place, the aggrieved plaintiff must be permitted to present its best evidence on damages and not be foreclosed from seeking damages it deserves due to difficulty in measurement.” *Id.* at 544.

Relying on *Mid-Michigan Computer* and *Avery Dennison*, the OUTSA model jury instruction on the reasonable royalty measure instructs the jury as follows:

If you decide that the compensatory damages provided by actual loss and unjust enrichment are insufficient under the circumstances, you may then consider an award of damages based on a reasonable royalty as an alternative. You may not issue an award based on actual loss and unjust enrichment plus a reasonable royalty.

A royalty is a license to use the trade secret and measures the value of the trade secret to the defendant at the time that it was misappropriated, regardless of the commercial success of the enterprise. You should calculate what the parties would have agreed to as a fair price for licensing the defendant to put the trade secret to the use the defendant intended at the time the misappropriation took place. The royalty must be fair and reasonable under the circumstances, and you should consider the loss to the plaintiff, the benefit to the defendant, or both.

Instruction No. 18, The Ohio Judicial Conference Ohio Jury Instructions, 1 OJI CV 537.11 (Trade Secrets).²

² The Ohio Jury Instructions are the work of the Ohio Judicial Conference, an official body of Ohio judges. Ohio Rev. Code § 105.91. The Ohio Supreme Court relies on them, *e.g.*, *Cleveland Electric Illuminating Co. v. Astorhurst Land Co.*, 480 N.E.2d

B. The jury should have been allowed to consider awarding a reasonable royalty.

Coda requested that the jury be given the model instruction. Appx14789. The district court rejected that request and refused to send the reasonable royalty issue to the jury. Appx17854-17855. In its oral ruling, the court concluded that Coda had presented evidence only to show damages as measured by its actual loss, not to support a reasonable royalty. *Id.* The court reasoned that “there would be no guidance for the jury here as to how should [the jury] decide to go with a reasonably royalty calculation, how that would ever be calculated, given the lack of evidence relative to some of that portion of that damage calculation in the Court’s estimation.” *Id.* This Court should reverse.

To begin, Coda’s proposed jury instruction is consistent with the statute and the case law and would have provided sufficient guidance to the jury. Again, it directs the jury to determine “the value of the trade secret to the defendant at the time that it was misappropriated,” before it was known whether the defendant’s intended use would be a commercial success or not, and to come up with a “fair price for licensing the defendant to put the trade secret to the use the defendant intended

794, 798 (Ohio 1985), and the Sixth Circuit treats them as “codif[ying]” case law, *Hayward v. Cleveland Clinic Foundation*, 759 F.3d 601, 611 n.3 (6th Cir. 2014).

at the time the misappropriation took place.” The parties could also have provided argument on the issue during their closing arguments.

While determining a reasonable royalty is not an exact science, that inexactitude results from the counterfactual nature of the exercise, which in turn results from the defendant’s decision to steal the trade secret rather than negotiate for a license. That is why “uncertainty should [not] preclude recovery” and “the aggrieved plaintiff must be permitted to present its best evidence on damages and not be foreclosed from seeking damages it deserves due to difficulty in measurement.” *University Computing*, 504 F.2d at 539, 544.

There was more than sufficient evidence from which the jury could have arrived at a price that would have been fair and reasonable as of the time of the misappropriation, considering the perceived value of the trade secrets to Goodyear at that time, before Goodyear knew whether it would achieve commercial success. *See id.* at 536 (“defendants must bear the risk of failure [of their wrongful venture] themselves”). In particular, there was compelling evidence of *Goodyear’s own assessment*, as of the time of the misappropriation, of the financial value of a self-inflating tire that used Hrabal’s pump location reflected in TS 24.

Goodyear itself projected that its self-inflating tire concept using Hrabal’s pump location had a net present value of **\$411,464,000** over just the next five years. Appx23757-23758. The jury thus had a very specific, concrete figure from

Goodyear itself showing the value of the project to Goodyear at the relevant time. As noted above, Goodyear itself also asserted at the time, including to the U.S. Department of Energy, that the project was “innovative due to the placement of the peristaltic pump,” which was not “on the rim flange” as in the prior-art flap solution but rather within “the tire cross-section” itself—in other words, Coda’s TS 24 pump location in the tire sidewall. Appx21661. This evidence from Goodyear’s own mouth would have enabled the jury to award Coda a fair and reasonable licensing fee for the crucial TS 24 pump location.³

The leading cases affirmed reasonable royalties awarded based on far less compelling evidence than the \$411 million internal valuation by the defendant here.

In *University Computing*, for instance, “[t]he only evidence introduced by either side on the question of damages for the AIMES III misappropriation was the expert testimony of one Stan Josephson, who estimated the value of a sale of unrestricted rights to AIMES III at \$220,000.” 504 F.2d at 543. The jury awarded that precise amount. *Id.* at 544. Josephson was the *plaintiff’s* “Vice President of

³ Goodyear had concrete support for its valuation. An internal Goodyear report concluded, based on a survey of 150 respondents in the trucking industry, that “Fleet Managers are willing to pay approximately 50% more for a tire equipped with AMT” (Goodyear’s term for its planned self-inflating tire product using Coda’s pump location). Appx21366. And Goodyear informed the DOE that “58% [of potential buyers in the trucking industry] probably or definitely would buy” its self-inflating tire product. Appx23591.

Technical Services, ... responsible for developing software systems, pricing them for marketing, and then assisting as technical expert at sales presentations.” *Id.* at 543. While Josephson “had no prior transaction upon which to base his opinion,” the Fifth Circuit held that “it wasn’t improper for [the plaintiff] to prove its best estimate of the proper sales price” through his testimony. *Id.* at 544. The Fifth Circuit thus upheld the award. *Id.*

In this case, by contrast, the jury had *the defendant’s own valuation*. The evidence here is far stronger than the testimony that the Fifth Circuit deemed sufficient as a “best estimate” in *University Computing*.

In *Mid-Michigan*, the Sixth Circuit affirmed a \$2 million reasonable royalty under OUTSA. 416 F.3d at 506, 509. “The basis for the \$2 million reasonable royalty award was the parties’ 1997 Source Code Agreement, in which [the defendant] agreed to pay liquidated damages in the amount of \$50,000 per pharmacy [that used the plaintiff’s software] in the event it wrongfully accessed the source code stored in escrow.” *Id.* at 511. The \$2 million was simply \$50,000 times the 40 pharmacies then in operation. *Id.* Notably, the defendant had not actually violated the Source Code Agreement; the district court had dismissed the plaintiff’s breach-of-contract claim. *Id.* And a party’s agreement to a contractual liquidated damages provision in the event that it improperly accessed the trade secret is a questionable proxy for what the party would have been willing to pay to license the trade secret,

since a party agreeing to a liquidated damages provision does not intend to breach the contract and pay the damages. Yet the Sixth Circuit concluded: “Under the deferential standard of review that controls here, we decline to hold that the \$2 million figure used by the jury was a clearly excessive estimation of the price [the defendant] would have paid for such a ‘suppositious license.’” *Id.* (citations omitted).

Goodyear’s own projection of the value of its self-inflating tire project is a far better gauge of what it was willing to pay than the liquidated damages provision in *Mid-Michigan* or the plaintiff’s valuation in *University Computing*. Like the measures upheld in those cases, Goodyear’s own projection surely is not a “clearly excessive estimation of the price [that Goodyear] would have paid” for a license. *Id.* Coda is entitled to a new damages trial at which it could ask the jury for a reasonable royalty award.

III. The district court erred in rejecting Coda’s equitable claims for injunctive relief and correction of inventorship.

In addition to its trade secret damages claim, Coda sought injunctive relief under OUTSA and correction of inventorship under 35 U.S.C. § 256, asking that Hrabal be recognized as the inventor of U.S. Patent 8,042,586. *See* Appx32. These are equitable issues for the court to decide. *See Ultra-Precision Manufacturing, Ltd. v. Ford Motor Co.*, 411 F.3d 1369, 1376 (Fed. Cir. 2005). This Court’s law governs

correction of inventorship, and the Court reviews the district court’s findings of fact for clear error and its conclusions of law de novo. *Id.*

The district court’s rejection of Coda’s equitable claims turned on a legal error: the court’s legally erroneous decision to throw out the jury verdict under Rule 50(b). As the district court acknowledged, “when a party has a right to a jury trial on an issue involved in a legal claim, the judge is ... bound by the jury’s determination of that issue as it affects [the court’s] disposition of an accompanying equitable claim.” Appx40 (quoting *Kitchen v. Chippewa Valley Schools*, 825 F.2d 1004, 1014 (6th Cir. 1987)). The court was thus “constrained by any relevant fact-finding of the jury when deciding the [remaining] equitable matters.” *Id.*

Instead, the court reasoned that it could disregard the jury’s findings entirely because it had thrown out the verdict under Rule 50(b). *Id.* The court concluded that “because all those verdicts have been set aside, [Coda’s] arguments [based on the jury’s findings] are summarily rejected.” *Id.* The court proceeded to make factual findings that starkly conflict with the jury’s view of the case, including dismissing Hrabal’s testimony as “unconvincing[],” “vague,” “evasive,” and “at times incomprehensible,” while lauding Defendant Benedict—who the jury found had maliciously stolen Hrabal’s innovations—for his “credible and convincing testimony.” Appx9, Appx28, Appx30; *but see* Appx28 (Judge Lioi’s

acknowledgement that the evidence supported the jury's finding that any misappropriation by Benedict was done with actual malice).

Because the district court's rejection of the claims for injunctive relief and correction of inventorship was premised on its erroneous grant of Goodyear's Rule 50(b) motion, this Court should reverse and remand.

IV. The district court erred in suggesting that Coda's claims were barred by laches.

Laches is an affirmative defense available in equity where a plaintiff's unreasonable delay in filing suit has prejudiced the defendant. *See SCA Hygiene Products Aktiebolag v. First Quality Baby Products, LLC*, 580 U.S. 328, 331 (2017). "A finding that a suit is barred by laches is reviewed for an abuse of discretion," which "may be found when the decision rests on an erroneous interpretation of the law or on clearly erroneous factual underpinnings, or absent such errors, when the court's decision represents an unreasonable judgment in weighing relevant factors." *Intirtool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1294 (Fed. Cir. 2004).

Here, Goodyear argued laches, but the district court reasoned that, in light of its rejection of both the jury's trade secret verdict and Coda's equitable inventorship claim, "laches need not be addressed." Appx35. Nonetheless, the court stated in a brief footnote that it "finds merit in Goodyear's assertion of this defense" because "Goodyear asserts, correctly in the Court's view, that 'Coda intentionally, and

unreasonably, delayed in asserting its claims, to Goodyear's prejudice.” *Id.* (quoting Appx18078).

As the district court apparently recognized, it did not issue an actual ruling on laches. *See id.* It is not clear whether the court meant that it would certainly have ruled for Goodyear had it reached the issue or merely that it would have been inclined to do so. Regardless, because it did not reach the issue, the court did not “find the facts specially and state its conclusions of law separately” to enable appellate review, as required for issues “tried on the facts without a jury.” Fed. R. Civ. P. 52(a)(1). And the court's suggestion that laches may apply was wrong.

As an initial matter, laches has no application to the jury's damages award, for the equitable defense of “laches may not be invoked to bar damages relief if the action was brought within the limitations period.” *Operating Engineers Local 324 Health Care Plan v. G&W Construction Co.*, 783 F.3d 1045, 1054 (6th Cir. 2015). That is the holding of *SCA Hygiene*, 580 U.S. at 331-46. Here, Coda learned of Goodyear's self-inflating tire program on August 14, 2011, and filed suit on August 9, 2015—within OUTSA's four-year statute of limitations. *See* Ohio Rev. Code § 1333.66; Appx15618-15619, Appx15687, Appx15846-15850, Appx23548, Appx23553, Appx24095-24101, Appx235-250. While Goodyear initially persuaded the district court to dismiss the case on statute-of-limitations grounds, this Court reversed (916 F.3d at 1361-62), and Goodyear ultimately chose not to pursue

a statute-of-limitations defense at trial (Appx18709), where the jury would doubtless have rejected it. It follows that Goodyear—which bears the burden on both the equitable affirmative defense of laches and the legal affirmative defense of the statute of limitations—cannot establish that Coda filed its OUTSA claim outside the statute of limitations.⁴

Thus, as cases like *SCA Hygiene* and *Operating Engineers* make clear, even a successful laches defense here could not affect the jury’s legal damages award. Laches has potential application only to Coda’s equitable inventorship and injunction claims.

Even as to those equitable matters, laches is inapplicable here. *First*, because Coda filed within the statute of limitations, there is a strong presumption against laches, which requires a showing of “extraordinary circumstances.” *Petrella v. MGM, Inc.*, 572 U.S. 663, 685 (2014); *see also Chirco v. Crosswinds Communities, Inc.*, 474 F.3d 227, 233 (6th Cir. 2007). Goodyear cannot possibly rebut the presumption. The district court offered no basis for suggesting that it could.

⁴ Bizarrely, Goodyear argued in its post-trial brief below that it “showed [at the pleading stage] that Coda’s claim was time-barred under the 4-year statute of limitations” and that the district court’s dismissal of the case based on that argument constituted “findings ... on a less-developed record”—even though this Court *reversed* that pleading-stage ruling. Appx18082, Appx18087-18088; *see* 916 F.3d at 1361-62.

Second, “laches is an equitable defense and, putting to one side the fact that this is a legal action for damages, it can certainly be raised only by one who comes into equity with clean hands.” *United States v. Weintraub*, 613 F.2d 612, 619 (6th Cir. 1979); *see also Elliott v. First Federal Community Bank*, 821 F. App’x 406, 420 (6th Cir. 2020) (“it is fundamental that he who seeks equity must do equity, and that he must come into Court with clean hands” (quoting *Christman v. Christman*, 168 N.E.2d 153, 154 (Ohio 1960))). “A knowing violation of applicable law would certainly preclude a party from asserting the affirmative, equitable defense of laches.” *State ex rel. Mallory v. Public Employees Retirement Board*, 694 N.E.2d 1356, 1363 (Ohio 1998); *see, e.g., TWM Manufacturing Co. v. Dura Corp.*, 592 F.2d 346, 349 (6th Cir. 1979) (if the jury finds that the defendant committed “deliberate, calculated plagiarism,” then “the district court should not sustain the defense of laches”); *Board of Supervisors v. Smack Apparel Co.*, 550 F.3d 465, 490 (5th Cir. 2008) (“A defendant who intentionally infringes a trademark with the bad faith intent to capitalize on the markholder’s good will lacks the clean hands necessary to assert the equitable [laches] defense.”).

Here, the jury found by clear and convincing evidence that Goodyear knowingly and, indeed, maliciously broke the law by stealing Coda’s trade secrets—and even the district court acknowledged that there was “sufficient evidence presented to the jury to support the jury’s finding of actual malice.” Appx28. So

laches would be unavailable as a matter of law even if Goodyear could establish the elements of the defense.

V. If this Court remands to the district court, it should also order that the case be reassigned to another district judge.

Judge Lioi’s repeated serious errors in this action render implausible the notion that Coda could receive a fair hearing on remand. This Court should therefore order that the case be reassigned to preserve the appearance of justice.

“Because reassignment is not an issue unique to patent law,” this Court “follow[s] regional circuit law.” *Healthier Choices Management Corp. v. Philip Morris USA, Inc.*, 65 F.4th 667, 678 (Fed. Cir. 2023). The Court “possesses the power, under appropriate circumstances, to order the reassignment of a case on remand pursuant to 28 U.S.C. § 2106.” *Rorrer v. City of Stow*, 743 F.3d 1025, 1049 (6th Cir. 2014). Relevant factors include “whether the original judge would reasonably be expected to have substantial difficulty in putting out of his or her mind previously expressed views or findings” and “whether reassignment is advisable to preserve the appearance of justice.” *Lavin v. Husted*, 764 F.3d 646, 652 (6th Cir. 2014).

For instance, reassignment is appropriate “if the judge made statements or a one-sided ruling that predicts a substantial difficulty in putting aside previously expressed views,” *Gabrion v. United States*, 43 F.4th 569, 590 (6th Cir. 2022), or where “the district court’s opinion reflects a distinct hostility toward the [party]” or

“creates the appearance that the district court was biased,” *Lavin*, 764 F.3d at 652. *See also United States v. Domenech*, 63 F.4th 1078, 1084 (6th Cir. 2023) (ordering reassignment where “[t]he district judge’s failure to engage with the [appellants’] arguments ... raises significant concern as to whether the judge can be reasonably expected to reevaluate her earlier views and findings”). Reassignment is appropriate, for example, where a district court’s orders “contain[ed] increasingly accusatory language directed at [one party].” *John B. v. Goetz*, 626 F.3d 356, 364 (6th Cir. 2010).

Reassignment is necessary to preserve the appearance of justice in this case in light of the district judge’s numerous serious errors and unfair pronouncements about Coda and its counsel, all of which suggest that the judge would have substantial difficulty putting those previously expressed opinions out of mind.

This case first came up to this Court on appeal following the district judge’s dismissal of Coda’s complaint, in its entirety, and denial of leave to amend. As this Court explained in its ruling reversing those decisions, Judge Lioi departed from the usual course of federal practice at the motion-to-dismiss stage by (1) considering extraneous material that Goodyear supplied with its reply in support of its motion to dismiss, while denying Coda leave to respond to that material; (2) drawing inferences against Coda, the non-movant, when reasonable inferences existed in Coda’s favor; and (3) ruling against Coda based on the statute of limitations—an

affirmative defense—based on a theory *of her own devising*, which Goodyear never raised and Coda had no opportunity to refute. *See* 916 F.3d at 1360-62. The judge then strayed even further from ordinary practice by rejecting Coda’s motion to file a *first* amended complaint—not because the amendment was futile, but, rather, because it addressed the supposed flaws that she had identified in the original complaint with such “amazing clarity” that she accused Coda of “gamesmanship.” *Id.* at 1362; Appx1780.

This Court disagreed, reversing the district judge on every point, holding that the original complaint should never have been dismissed and that the denial of leave to amend was “troubling, particularly given the previously described errors” with the dismissal of the original complaint. 916 F.3d at 1362.

On remand, however, the district judge evinced substantial difficulty in putting her previously expressed views of Coda and its supposed “gamesmanship” out of her mind. Rather, doubling down on her accusations, she accused Coda’s counsel of *unethical behavior* for withholding certain material under a claim of privilege—even though the magistrate judge who ruled on the matter in the first instance had likewise determined that the material was *properly withheld*. Appx19256-19258 (questioning the “honesty, integrity, [and] professionalism” of Coda’s counsel and pronouncing counsel’s conduct “very troubling to me”). There was no legitimate basis for such accusations when the magistrate judge determined

not merely that Coda’s position was within the field of reasonable legal disagreement but that Coda was actually correct to withhold the material. Appx5803-5808.

The district judge’s apparent commitment to her previously expressed dim view of Coda and its counsel persisted at trial—and stands in stark contrast to the view of the nine impartial jurors who watched the same trial but came to a diametrically opposed conclusion about the relevant individuals and their actions. Appx17986. The jury found that Hrabal was credible and had made major advances in the field of self-inflating tires, while Goodyear and Benedict were not credible and had maliciously stolen Hrabal’s ideas, meriting substantial punitive damages. The district judge did not deny that the evidence sufficed for the jury to find that Goodyear and Benedict acted willfully. *See* Appx28. Yet she declared that Benedict’s testimony was “credible and convincing” (Appx39) while “Hrabal offered no testimony that convinced [the judge] that he was the inventor of *any* of the claims of the ’586 Patent” or that “in the 2009 meetings Hrabal disclosed to Goodyear an actual ‘optimal location’ that he alone had discovered before anyone else, much less where such location might have been in a tire.” Appx49, Appx62 (emphasis added); *see also* Appx58-59 (branding Hrabal’s testimony “unconvincing[.]” while praising Benedict’s as “coherent[.] and convincing[.]”); Appx63 (dismissing Hrabal’s trial testimony as “evasive”); Appx33 (accusing Coda of an “apparent strategy of evasiveness”).

Contrary to the jury’s findings, the judge insisted that “Hrabal did not conceive of (or even understand)” the “novel feature of the ’586 Patent” (i.e., the pump location in the tire sidewall) that Benedict applied for based on Hrabal’s own stolen trade secrets. Appx59. Indeed, the judge declared that “Hrabal’s description of what he disclosed to Goodyear during two meetings in January and June of 2009 [was] vague, evasive, and at times incomprehensible, demonstrating a lack of understanding of key concepts in the ’586 Patent.” Appx60. Again, the jury necessarily found that Hrabal was an innovator in the field of tire design, that he conveyed his innovations to Benedict at their meetings, and that Benedict and Goodyear *maliciously* misappropriated them.

In further contrast with her dim view of Coda, the judge pronounced with next to no analysis that she “f[ound] merit in Goodyear’s assertion” of the affirmative defense of laches—even though Goodyear’s evidence was so weak that Goodyear did not even try to present its statute-of-limitations defense to the jury. Appx35.

A judge who has repeatedly and publicly professed such strong negative views about Coda, Hrabal, and their counsel cannot reasonably be expected to give Coda a fair trial, nor would remand to that judge preserve the appearance of justice.

Additionally, just as at the motion-to-dismiss stage, the positions adopted by the district judge during and after the trial are contrary to controlling law, including as shown above with respect to definiteness, reasonable royalties, and laches.

The district judge's errors have again compelled Coda to appeal to this Court, and this Court must again reverse and remand. The judge's repeated serious errors and apparent inability to set aside her long-expressed dim view of Coda and its counsel strongly suggest that yet another appeal and remand may be necessary if the case is not reassigned. Both the appearance of justice and justice itself would be ill-served by such protracted proceedings. The case should be reassigned now.

CONCLUSION

This Court should reverse the decision below and remand for a new damages trial. On remand, the case should be reassigned to a new district judge.

Respectfully submitted,

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October 18, 2023

Counsel for Plaintiffs-Appellants

STATUTORY ADDENUM

Ohio Uniform Trade Secrets Act (OUTSA), Ohio Revised Code 1333.61 *et seq.*

Section 1333.61. Definitions

As used in sections 1333.61 to 1333.69 of the Revised Code, unless context requires otherwise:

(A) “Improper means” includes theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means.

(B) “Misappropriation” means any of the following:

(1) Acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper means;

(2) Disclosure or use of a trade secret of another without the express or implied consent of the other person by a person who did any of the following:

(a) Used improper means to acquire knowledge of the trade secret;

(b) At the time of disclosure or use, knew or had reason to know that the knowledge of the trade secret that the person acquired was derived from or through a person who had utilized improper means to acquire it, was acquired under circumstances giving rise to a duty to maintain its secrecy or limit its use, or was derived from or through a person who owed a duty to the person seeking relief to maintain its secrecy or limit its use;

(c) Before a material change of their position, knew or had reason to know that it was a trade secret and that knowledge of it had been acquired by accident or mistake.

(C) “Person” has the same meaning as in division (C) of section 1.59 of the Revised Code and includes governmental entities.

(D) “Trade secret” means information, including the whole or any portion or phase of any scientific or technical information, design, process, procedure, formula, pattern, compilation, program, device, method, technique, or improvement, or any business information or plans, financial information, or listing of names, addresses, or telephone numbers, that satisfies both of the following:

(1) It derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.

(2) It is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Section 1333.63. Damages

(A) Except to the extent that a material and prejudicial change of position prior to acquiring knowledge or reason to know of misappropriation renders a monetary recovery inequitable, a complainant in a civil action is entitled to recover damages for misappropriation. Damages may include both the actual loss caused by misappropriation and the unjust enrichment caused by misappropriation that is not taken into account in computing actual loss. In lieu of damages measured by any other methods, the damages caused by misappropriation may be measured by imposition of liability for a reasonable royalty that is equitable under the circumstances considering the loss to the complainant, the benefit to the misappropriator, or both, for a misappropriator’s unauthorized disclosure or use of a trade secret.

(B) If willful and malicious misappropriation exists, the court may award punitive or exemplary damages in an amount not exceeding three times any award made under division (A) of this section.

35 U.S.C. § 256. Correction of named inventor

(a) Correction.—Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent, the Director may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

(b) Patent Valid if Error Corrected.—The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.

28 U.S.C. § 2106. Determination

The Supreme Court or any other court of appellate jurisdiction may affirm, modify, vacate, set aside or reverse any judgment, decree, or order of a court lawfully brought before it for review, and may remand the cause and direct the entry of such appropriate judgment, decree, or order, or require such further proceedings to be had as may be just under the circumstances.

CIRCUIT RULE 28(c) ADDENDUM

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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

CODA DEVELOPMENT s.r.o., CODA
INNOVATIONS s.r.o., and FRANTISEK
HRABAL,

PLAINTIFFS,

VS.

GOODYEAR TIRE & RUBBER
COMPANY and ROBERT BENEDICT,

DEFENDANTS.

CASE NO. 5:15-cv-1572

JUDGE SARA LIOI

JUDGMENT ENTRY

For the reasons set forth in the Memorandum Opinion and Order on Defendants' Renewed Rule 50 Motion (Doc. No. 393) and the separately issued Findings of Fact, Conclusions of Law, and Order (Doc. No. 394) judgment is entered in favor of defendants Goodyear Tire & Rubber Company and Robert Benedict on Counts One, Two, and Four of the First Amended Complaint. Count Five of the First Amended Complaint is dismissed.¹ This case is dismissed in its entirety.

IT IS SO ORDERED.

Dated: March 31, 2023

HONORABLE SARA LIOI
UNITED STATES DISTRICT JUDGE

¹ The parties jointly stipulated to dismissal of Count Three of the First Amended Complaint and defendant Robert Allen Losey. The Court confirmed this partial dismissal with prejudice by Order dated February 2, 2021. (Doc. No. 218.)

NORTHERN DISTRICT OF OHIO

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JUDGE SARA LIOI

**MEMORANDUM OPINION
AND ORDER ON DEFENDANTS'
RENEWED RULE 50 MOTION**

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**MEMORANDUM OPINION
AND ORDER ON DEFENDANTS'
RENEWED RULE 50 MOTION**

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Appx00002

I. Procedural Summary¹

On August 9, 2015, Coda filed its complaint against Goodyear, Benedict, and a third defendant (who has since been dismissed), alleging various claims relating to the purported misappropriation by defendants of Coda’s confidential and proprietary Self-Inflating Tire (“SIT”) technology, allegedly invented by Hrabal (Coda’s CEO) and allegedly orally disclosed to Goodyear under a non-disclosure agreement during the course of two meetings in January and June of 2009. The original complaint set forth thirteen claims for correction of inventorship under 35 U.S.C. § 256, one claim under the Lanham Act, and several state law claims (two for fraudulent non-disclosure, one for misappropriation of trade secrets, two for tortious interference with business relations/prospective economic advantage, one for negligent misrepresentation, and one for unjust enrichment).

On February 22, 2019, the Federal Circuit vacated orders of this Court dated September 29, 2016 (dismissing the case) and September 26, 2017 (denying Coda’s post-dismissal motion for leave to amend the complaint). The Federal Circuit remanded for further proceedings, including permitting Coda to file an amended complaint. *Coda Dev., s.r.o. v. Goodyear Tire & Rubber Co.*, 916 F.3d 1350 (Fed. Cir. 2019).²

On April 15, 2019, Coda filed the currently operative first amended complaint setting forth five claims: three seeking correction of inventorship, one for misappropriation of trade secrets, and

¹ This case has an unusually long history, which includes many written opinions and rulings by this Court. Some of what is contained herein may be verbatim from other orders but, for the sake of simplicity, the Court will omit quotation marks and/or citations to those previous orders of record. Generally speaking, the Court assumes familiarity with the primary procedural facts.

² The Federal Circuit vacated this Court’s dismissal order for two procedural reasons. First, the appeals court concluded that this Court’s consideration on a motion to dismiss of matters outside the pleadings (*i.e.*, Hrabal’s 2008 *Tire Technology* article), without converting the motion to one for summary judgment, was a procedural error. *Coda Dev., s.r.o.*, 916 F.3d at 1360. Second, the appeals court concluded that this Court’s dismissal on statute of limitations grounds went “to the merits” of an affirmative defense “[rather] than the complaint’s sufficiency.” *Id.* at 1361–62.

one for a declaratory judgment. (Doc. No. 53.³) Goodyear answered on May 13, 2019, having been granted an unopposed extension of time. (Doc. No. 57.)

Early in the course of discovery, during the first status conference—with both counsel and all party representatives participating (*see* Minute Order [non-document] (11/1/2019))—the Court discussed Goodyear’s concern that “Coda refuses to . . . provide a closed-ended response [to certain interrogatories.]” (Doc. No. 74, Defendants’ Notice of Discovery Dispute, at 2.⁴) In an order issued on November 21, 2019, the Court determined:

Under the peculiar circumstances of this case, where the alleged disclosure of trade secrets was *entirely oral*, the danger of plaintiffs “molding” their claims by way of subsequent supplementation of their original recollection of those two 2009 conversations is of particular concern. Plaintiffs claim they *told* defendants their trade secrets and defendants thereafter misappropriated them. Under that scenario, it is entirely reasonable for defendants to request . . . that plaintiffs supply a “closed” recital of their recollection of what was orally imparted in the two meetings of limited duration in 2009.

(Doc. No. 82, Memorandum Opinion and Order, at 7 (emphases in original).) The Court then ordered:

Accordingly, the Court will require that plaintiffs supply a “closed” response to [the relevant interrogatory[ies]], supplying sufficient specificity and description to permit defendants to know what discovery will be relevant and what specific claims of trade secret misappropriation they must defend against.

As a final caution, the Court directs plaintiffs to take this discovery mandate seriously and *not* provide a response so broad that it is meaningless or so

³ Of the five claims in the first amended complaint, one claim for correction of inventorship (Count Three) was voluntarily dismissed on February 2, 2021. (*See* Doc. No. 218, Order.) The case proceeded as to the other four counts. Ultimately, Count Four (Misappropriation of Trade Secrets) was tried to a jury; Count One (Correction of Inventorship), Count Two (Joint Inventorship), and Count Five (Declaratory Judgment) remained for resolution by the Court, which the parties agreed to resolve by briefing (*see* Doc. No. 371, Notice as to Inventorship Claims; Doc. No. 372, Order). After the jury trial, plaintiffs voluntarily abandoned Count Two (*see* Doc. No. 378, Plaintiffs’ Opening Brief, at 7 n.1), leaving for the Court only Counts One and Five. A separate ruling will issues as to those counts, as well as defendants’ affirmative defense of laches.

⁴ Except as otherwise noted for trial transcripts (*see* n.6), all page number references herein are to the consecutive page numbers applied to each individual document by the Court’s electronic filing system, a practice recently adopted by the Court (which differs from the directives in the Initial Standing Order (Doc. No. 19)).

incomplete, vague, and evasive that it is useless. Should the Court determine that plaintiffs fail in this regard, and do so purposefully, it will reserve the right to sanction plaintiffs up to and including dismissal. This is not prejudicial to plaintiffs because *plaintiffs themselves* are the ones who know what they said to defendants during the two meetings. There is no need to *discover* anything from the defendants in order for plaintiffs to write down their recollection of those meetings.⁵

⁵ Presumably, it was also plaintiffs themselves who made the choice to rely entirely upon an *oral* disclosure, which easily lends itself to the very situation the parties find themselves in now.

That said, although general supplementation will not be permitted, should it be determined that plaintiffs *inadvertently* failed to include something in their answer[s] . . . , the Court will remain open to entertaining limited supplementation upon a showing of an exceptional reason for doing so.

(*Id.* at 7–8 (footnote and emphases in original).) Coda subsequently supplemented its responses to Goodyear’s interrogatories. (*See* Doc. No. 223-20, Plaintiffs’ Supplemental Responses to Defendants’ First Set of Interrogatories.) In particular, Coda listed twenty-seven trade secrets that it allegedly disclosed to Goodyear relating to its SIT technology. (*Id.* at 24–27.)⁵ Subsequent to that supplementation, Coda withdrew ten of these trade secrets and proceeded with a misappropriation claim as to the following seventeen:

- TS 1: A self-inflation system that operates when the tire rotates in either direction and the desirability of a symmetrical implementation of the pump system in the tire, such as the use of two mirror-image pumps;
- TS 2: Coda’s knowledge of how to design and develop a peristaltic pump with symmetry that takes into consideration symmetrical pump tubes providing bi-directional functionality and uniformity, variant pump tube lengths and configurations that can be less than fully circular, fully circular and super circular, and a bi-directional arrangement implementing the principles of symmetry, such as

⁵ There is no dispute that there was no written list of trade secrets until November 2015, three months after Coda filed this lawsuit; Hrabal himself never wrote them down. Dan Jackson, a retired investment banker who ultimately invested in Coda (Doc. No. 358, Transcript [“Tr.”] at 1062–63; 1065), along with lawyers he engaged as he investigated whether to invest, created a “compilation of potential trade secrets and other Coda ideas used by Goodyear[.]” (*Id.* at 1088; Ex. D-293.) He acknowledged that Hrabal “had given a presentation to Goodyear that was a complete information package . . . mixing public information, patented and unpatented, and trade secret information without regard to those categories but solely with regard to what he thought would persuade Goodyear to start a development.” (*Id.* at 1089.) Jackson admitted that the “compilation” was his effort “to get the lawyers thinking about categories and whether they could be used as trade secrets.” (*Id.*) According to Jackson, Coda’s lawyers used his “compilation” to “formulat[e] correct trade secrets.” (*Id.* at 1090–91.)

the example of 360-degree oppositely oriented pumps in each sidewall of a tire;

- TS 3: Use of a regulator with a threaded member in a self-inflating tire to adjust the space between the membrane and the aperture, thereby resulting in a change in regulator pressure;
- TS 4: Coda's knowledge of how to design and develop a pump-system for a self-inflating tire, which comprises the following design alternatives: "dead space" in the pump chamber in order to limit the maximum pump pressure to prevent over-inflation of the tire; a nonrecirculating system where a portion of the pump tube is not compressed during tire rotation to ensure that the tire is not over-inflated, and the incompressible portion of the tube is between the pumping portion and the tire interior, and the tube is open to the atmosphere; a non-recirculating system where an incompressible portion of the tube is between the pumping portion and atmosphere, and the tube is open to the tire; a recirculating system that eliminates dead space; a regulator with a three-way valve that would recirculate the air while the tire is not being inflated, which minimizes pump wear and maximizes energy efficiency; a recirculating system whereby operation of the tire in reverse does not damage the system; and the design considerations for a system without recirculation;
- TS 5: Coda's technique regarding the alternative to molding a pump chamber into the tire by embedding and removing a filament to form a cavity in the tire, and the improvements in the filament embedding process by coating the filament in a silicone lubricant before pressing and vulcanizing the tire;
- TS 7: Coda's design and development of a multi-purpose interface for transporting air in a self-inflating tire that can connect to the air source, connect to the tire interior, connect to the peristaltic pump, serve as an end to the peristaltic pump, connect to the regulator, carry the regulator, go around or through the bead, go around or through the tire layers, click to the bead and hold the filter;
- TS 11: Coda's knowledge of how to design and develop self-inflating tire pump and groove solutions, consisting of round pump tubing in an outward-facing groove with straight, angled interior geometry; pump tubing with geometry that interlocks with its seat; pump tubing with elliptical interior cross-section; variant pump tube, groove and chamber dimensions, size and materials; pump tube and groove design to minimize internal friction; a "tubeless" pump solution (i.e., a pump that may compose an integral part of tire); cross-section designs that minimize stress on compression in order to improve durability; and tubing with reinforced wall;
- TS 15: Coda's improvements in self-inflating tire technology by assessing alternative locations of a peristaltic pump in the following areas: on the radial face of the bead abutting the rim; in the tread area; in the sidewall against the rim, with use of a spacer to shift the flexion in order to create room for the chamber; between the tire and the rim with flap tubes; in the sidewall near and above the rim at the end of a flap passage; and in the sidewall near and above the rim in an outward facing groove;

- TS 16: Coda's design, development, and testing regarding the feasibility and improvements in self-inflating tire technology by embedding a tube in a groove in a tire sidewall to act as a peristaltic pump;
- TS 18: Coda's knowledge regarding how moving the pump relative to the tire bead (axially or radially) affects the leverage and compressive force exerted on the pump, impacts the ability to open and close the tube, and the magnification of the leverage from the flexion of the sidewall, as demonstrated by the built-out groove of the prototype;
- TS 19: Coda's knowledge regarding the behavior of the tire sidewall during the course of tire rotation to evaluate a preferred location for the pump tube based on rigidity, centrifugal forces, and proximity to the air source;
- TS 20: Coda's knowledge of how to design and develop self-inflating tire systems with circulating and non-circulating pump variations, comprised of the disclosure of technical information through observations and descriptions of the three-way valve regulator, and explanations of the function and air-paths for the states of recirculation and inflation; closure elements related to recirculation systems and a pressurized air reservoir that would permit the storage of air within the system without the need to engage the pump tube with each tire revolution; recirculation at different pressures, such as ambient pressure; recirculation through various paths, such as through the tire, the atmosphere and the pump tube; the safety benefit of recirculating around the pump tube isolated from the tire cavity; a check valve on intake (between the pump tube and the atmosphere) to only permit air in when pressure in the pump tube falls below atmospheric pressure; and a check valve on output (between the pump tube and tire interior) to only allow air into the tire when pressure in the pump tube exceeds the tire pressure;
- TS 22: Coda's design and development of pressure management device alternatives for self-inflating tires, consisting of pressure management devices with the membrane containing a reference space, a spring-assisted membrane, a spring-loaded closure element, and electronic management, and knowledge of the different pressure-temperature response characteristics of these alternatives;
- TS 23: Coda's development of a functional self-inflating tire as demonstrated by the test results confirming that the tire pump can generate pressure higher than the pressure in the tire cavity, through the test results showing that the pump placed on the tread could generate 6.5 absolute atmospheres of pressure (5.5 relative atmospheres); the test results showing that the tube-in-groove pump of the prototype could generate 3.3 absolute atmospheres of pressure; and test results that demonstrated that the Flap Tubes could generate 1 relative atmosphere of pressure;
- TS 24: Coda's knowledge regarding the optimal location for placement of a pump in a tire for tire manufacturers, namely, in the sidewall close to, and above, the rim where the tire cyclically deforms in response to deformation;

- TS 25: Coda's knowledge of potential tire-making cost-savings promoted by self-inflating tire technology, by permitting the removal or reduction of the inner liner; and
- TS 27: Coda's knowledge presented and disclosed to Goodyear at the January and June, 2009 meetings, consisting of the PowerPoint presentation; the prototype self-inflating tire, regulators, pump tubes, mock-ups, and other physical exhibits; the possible location of a pump in a tire; the design and build of the pump; the pressure management system options (dead space or recirculation); the efficacy of the pump in compensating for ordinary tire leakage; SIT testing mechanisms including the use of wireless sensors; marketing strategies directed to the commercial trucking industry; and tests and test results on self-inflating tire prototypes, combined with Coda's technology disclosed in its patents and patent applications regarding self-inflating tire technology.

(*See* Doc. No. 223-20, at 24–27; *see also* Doc. No. 365, Tr. at 2687–91.⁶)

Following a multiplicity of discovery disputes that necessitated repeated extensions of the case management plan (eight to be exact), referrals to the magistrate judge, and further lengthy rulings by this Court, finally, on February 8, 2021, defendants filed their motions for summary judgment on all remaining claims and on damages. (*See* Doc. Nos. 221, 222.) Briefing ensued and the motions were at issue on June 4, 2021. On September 30, 2021, the Court denied both dispositive motions. (*See* Doc. No. 262, Memorandum Opinion and Order.)

On October 8, 2021, the Court issued a final pre-trial conference and trial order, setting all trial-related deadlines and a trial date of August 22, 2022 (*see* Doc. No. 263), which was subsequently modified slightly (*see* Order (non-document) dated 8/18/22). Several motions in limine were filed on April 29, 2022, followed by full briefing, several days of argument, and rulings by the Court (on all but one motion) during a hearing on August 17, 2022.⁷

⁶ Because the various volumes of trial transcripts are consecutively numbered from page 1 to page 2804, rather than citing to any individual transcript's page number applied by the electronic filing system (which is the Court's usual practice), the Court will instead cite to the actual transcript page number(s) applied by the court reporters.

⁷ Although the docket reflects a request by plaintiffs for a transcript of the August 17th proceedings (*see* Doc. No. 344), no official transcript was ever filed, probably because plaintiffs only requested a realtime unedited transcript.

The case proceeded to trial, with the jury being selected on August 29, 2022 (*see* Doc. No. 353, Transcript) and testimony being heard between September 6–15, 2022 (*see* Doc. Nos. 355–359, 361–62, 364, Transcripts). Notably, only Coda’s trade secrets claims were tried to the jury; its inventorship claims were reserved for trial to the Court. Closing arguments and instructions to the jury occurred on September 16, 2022, with the jury beginning its deliberations that same day. (*See* Minutes of Proceedings (non-document), dated 9/16/2022.)

On September 14, 2022, after Coda had rested its case on its trade secret claims, the Court heard arguments outside the jury’s presence on defendants’ Rule 50(a) JMOL motion (Doc. Nos. 360, 363). (*See* Doc. No. 361, Tr. at 1731–39; 1936–2086.) On September 15, 2022, after the defense rested its case, the Court heard additional arguments outside the presence of the jury on Goodyear’s renewed Rule 50(a) motion (*see* Doc. No. 364, Tr. at 2544–2622), and issued a ruling regarding which of the remaining seventeen trade secrets would not be permitted to go to the jury (*see id.*, Tr. at 2644–50). In summary, the Court eliminated Trade Secrets 4, 15, 18, 19, and 27, finding that they were indefinite. But the Court also noted:

The Court still has concerns regarding the definiteness of some or all of the trade secrets not addressed just now.

Pursuant to [] Rule 50, the Court will submit the action to the jury, subject to the Court’s later deciding the legal questions raised by the motion.

So this is not the end of the road relative to whether these are definite enough to really even be trade secrets. As I said, I do have some very serious concerns.

* * *

And finally, the Court recognizes that Goodyear has raised several additional grounds which will also be submitted to the jury subject to the Court’s later deciding the legal questions raised by the motion.

So I have to say very honestly, I do have some grave concerns. I have spent hours, days, weeks, trying to understand some of these trade secrets. It's very difficult. I cannot imagine, with the language used, how many of these trade secrets could possibly put anyone on notice as to what the secret was.

I've been, in my opinion, very conservative in my approach to what I'm not allowing the jury to consider. I'm not closing the record on the Rule 50 motion relative to the other issues.

(*Id.*, Tr. at 2650–51.) The Court permitted the remaining twelve alleged trade secrets to go to the jury, subject to the reservation just quoted.

The jury ultimately found that, of the twelve alleged trade secrets disclosed by Coda to Goodyear during the 2009 meetings, only seven actually were trade secrets (TS 3, 5, 7, 11, 20, 23, and 24).⁸ The jury further found that Goodyear had misappropriated five of those trade secrets (TS 7, 11, 20, 23, and 24), causing Coda \$2.8 million in compensatory damages. The jury also concluded that Coda was entitled to recover \$61.2 million in punitive damages because Goodyear's misappropriation was willful and malicious. (*See generally* Doc. No. 369, Verdicts.)

Thereafter, the parties filed their respective briefs now before the Court, along with briefs on the merits of Coda's inventorship claims and Goodyear's affirmative defenses. The Court addresses herein the renewed Rule 50 motion and will issue a separate ruling on the equitable claims, which are not automatically precluded by the instant ruling.⁹

⁸ Perhaps illustrative of how confusing and ill-defined Coda's "trade secrets" are, by the end of trial Coda had evolved its theory of damages to rely on two "foundational trade secrets" (TS 16 and TS 24), (*see* Doc. No. 361, Tr. at 2061–62 ("[I]t's trade secrets 16 and 24, that are . . . foundational. They're the important ones[.]"), and counsel for Coda seemed to focus on these two "foundational trade secrets" alone in its closing argument. (*See* Doc. No. 365, Tr. at 2732:9–18.) But in the end, the jury found one of the "foundational trade secrets" was not definitive enough to be a trade secret while the other was. (Doc. No. 369 (Verdict Forms).)

⁹ Without citing any authority, in its brief in opposition to plaintiffs' brief on the equitable claims, Goodyear declares that, if the Court grants Goodyear's Rule 50(b) motion, there will be no basis for Coda to claim inventorship, allowing the Court to "short-circuit Coda's bizarre request to reallocate the ownership of a patent Coda thinks is worthless and unenforceable[.]" (Doc. No. 380, at 2.) Plaintiffs did not respond to that assertion, but the Court concludes that the issues are separate and have different elements of proof. The mere fact that a person *may not* have a protected trade

II. Judgment as to Liability on Remaining Trade Secrets

Fed. R. Civ. P. 50(b) provides in relevant part:

If the court does not grant a motion for judgment as a matter of law made under Rule 50(a), the court is considered to have submitted the action to the jury subject to the court's later deciding the legal questions raised by the motion. . . . In ruling on the renewed motion, the court may:

- (1) allow judgment on the verdict, if the jury returned a verdict;
- (2) order a new trial; or
- (3) direct the entry of judgment as a matter of law.

This Court may grant Goodyear's Rule 50(b) motion “only if in viewing the evidence in the light most favorable to [Coda], there is no genuine issue of material fact for the jury, and reasonable minds could come to but one conclusion, in favor of the moving party.” *Sykes v. Anderson*, 625 F.3d 294, 305 (6th Cir. 2010) (quoting *Radvansky v. City of Olmstead Falls*, 496 F.3d 609, 614 (6th Cir. 2007)); *see also* Fed. R. Civ. P. 50(b) advisory committee note to 1991 amendment (“In ruling on [a Rule 50(b)] motion, the court should disregard any jury determination for which there is no legally sufficient evidentiary basis enabling a reasonable jury to make it.”). The Court does not “reweigh the evidence or assess witness credibility,” *id.*, and must restrict its review “to the evidence . . . admitted at trial.” *Sykes*, 625 F.3d at 305 (citing 9B Charles A. Wright & Arthur R. Miller, *Federal Practice and Procedure* § 2540 (3d ed. 2008)).¹⁰

Ordinarily, for Goodyear to succeed on its challenge, it must “overcome the substantial deference owed a jury verdict.” *Radvansky*, 496 F.3d at 614. Here, however, Goodyear's renewed challenge relates in part to a threshold issue that the Court decides before sending trade secret

secret does not automatically mean they could not (or did not) contribute to a patented invention. As a result, the Court will issue a separate ruling on the equitable matters that were left for the Court's determination.

¹⁰ To the extent Ohio law governs because the Court in considering a state law claim for misappropriation of trade secrets, it is worth noting that Ohio courts apply this same standard. *See, Masterson v. Brody*, 197 N.E.3d 628, 637 (Ohio Ct. App. 2022) (citing, *inter alia*, *Posin v. A.B.C. Motor Court Hotel, Inc.*, 344 N.E.2d 334, 338 (Ohio 1976)).

matters to a jury—namely, whether the trade secrets, as articulated, are sufficiently definite to warrant protection under the Ohio Uniform Trade Secrets Act (“OUTSA”). Further, as outlined above, although the Court permitted twelve of Coda’s seventeen alleged trade secrets to go to the jury, it did so after noting significant concerns about whether even these twelve met this threshold requirement of definiteness and after expressly reserving its right to revisit all legal questions raised by Goodyear’s Rule 50 motions.

Goodyear’s renewed JMOL motion raises three arguments:¹¹

First, on the trade-secret findings, Coda failed to prove the definiteness of nos. 7, 11, 20, 23, and 24, or their misappropriation. The Court rightly harbored “very serious concerns” about these vague, indefinite trade secrets, and the record confirms the validity of that concern. *Second*, on the jury’s punitive-damages verdict, the Court should grant JMOL because there is no evidence on this record on which a reasonable jury could have found that Goodyear acted with “actual malice.” And *third*, though it should not be necessary for the Court to reach this issue, Ohio law compels a remittitur of the jury’s excessive punitive award. O.R.C. § 1333.63(B).

(Doc. No. 376, at 7.)

Upon its renewed consideration, the Court concludes that Goodyear’s first argument is dispositive to the extent it addresses lack of definiteness in, and/or misappropriation of, the five trade secrets.

Although Ohio Rev. Code § 1333.61(D), which defines a trade secret, contains nothing addressing how “definite” the information constituting a “trade secret” must be, courts have made clear that “a trade-secrets plaintiff must ‘defin[e] the information for which protection is sought with sufficient definiteness to permit a court to apply the [statutory] criteria for protection . . . and

¹¹ Because Doc. No. 376 is a renewed Rule 50 motion, only issues and arguments presented in the original motion (Doc. No. 360) may be considered. *See* Fed. R. Civ. P. 50 advisory committee note to 2006 amendment. In Doc. No. 360—the original motion—Goodyear argued that four of these five trade secrets were among all of the trade secrets that it characterized as “indefinite.” (Doc. No. 360, at 4–9.)

to determine the fact of an appropriation.” *Caudill Seed & Warehouse Co. v. Jarrow Formulas, Inc.*, No. 21-5345, 2022 WL 16846585, at *5 (6th Cir. Apr. 28, 2022) (quoting Restatement (Third) of Unfair Competition § 39 cmt. *d*) (applying the Kentucky Uniform Trade Secrets Act); *see also* *TLS Mgmt. & Mktg. Servs., LLC v. Rodriguez-Toledo*, 966 F.3d 46, 53 (1st Cir. 2020) (“Courts interpreting the [Act] have uniformly followed this requirement.”) (citing cases). In fact, this Court noted the same when, on November 21, 2019, it ordered Coda to “supply a ‘closed’ response to Interrogatory No. 1, *supplying sufficient specificity and description* to permit defendants to know what discovery will be relevant and what specific claims of trade secret misappropriation they must defend against.” (Doc. No. 82, at 7.) *See also* *Caudill Seed*, 2022 WL 16846585, at *5 (“Reasonable particularity must be particular enough as to separate the trade secret from matters of general knowledge in the trade or special knowledge of persons skilled in the trade.” (internal quotation marks and citations omitted)).¹²

¹² In its opposition brief, Coda places great stock in *Caudill Seed*’s affirmation of the denial of a Rule 50(b) motion. (Doc. No. 385, at 8–9 (citing *Caudill Seed*, 2022 WL 16846585, at *7, for the proposition that the jury’s verdict on liability will not be disturbed—regardless of claims that plaintiff presented “a constantly shifting trade secret . . .”).) But, as correctly noted by Goodyear, “Caudill [Seed] had real evidence of *bona fide* secrets—a poached employee [Kean Ashurst] who stole thousands of physical R&D files and then implemented his former employer’s specific process for his new employer.” (Doc. No. 387, at 8.) In fact, the district court in *Caudill Seed* described the trade secrets that were stolen by Ashurst as “[a] significant body of research and development relating to seeds and seed extraction processes [that] had been developed by Caudill Seed prior to Ashurst’s arrival at Caudill Seed and was available to and utilized by Ashurst in his work for Caudill Seed.” *Caudill Seed & Warehouse Co. v. Farrow Formulas, Inc.*, No. 3:13-cv-82, 2020 WL 3065626, at *1 (W.D. Ky. June 9, 2020). Importantly, the district court noted:

During the years of his employment at Caudill Seed, Ashurst maintained crucial notes and formulas in stenographer’s notebooks, a composition notebook, and on an external computer hard drive. He carefully guarded these items as they were the principal repositories for his task lists, thought processes and research results in his work for Caudill Seed. He kept the lab locked and generally inaccessible. The steno pads were locked in a file cabinet and the lab notebook and hard drive were either kept with Ashurst or were locked in the lab. To Caudill Seed’s great regret, it entrusted most of the memorialization of its science solely to Ashurst.

Id., at *2. *Caudill Seed* bears no resemblance to the instant case where there was *no* compilation of Coda’s alleged trade secrets until *after* this case was filed. Certainly there is no evidence here of notebooks, computer hard drives, locked cabinets, or locked labs. Hrabal’s disclosures were entirely oral.

Case law is clear that one cannot claim as a trade secret an entire body of knowledge without articulating “‘at least the boundaries within which the secret lies.’” *Top Agent Network, Inc. v. Zillow, Inc.*, No. 14-cv-4769, 2015 WL 10435931, at *2 (N.D. Cal. Aug. 6, 2015) (quoting *Diodes, Inc. v. Franzen*, 260 Cal. App. 2d 244, 253 (1968)). “If a plaintiff ‘effectively assert[s] that all information in or about its [product] is a trade secret,’ then it brings a case ‘both too vague and too inclusive,’ and does not allow a jury to ‘separate the trade secrets from the other information that goes into any’ product in the field.” *Caudill Seed*, 2022 WL 16846585. at *5 (quoting *IDX Sys. Corp. v. Epic Sys. Corp.*, 285 F.3d 581, 583–84 (7th Cir. 2002) (applying the Wisconsin Uniform Trade Secrets Act)).

That said, the Court further notes that the Ohio Supreme Court does recognize that a trade secret may be articulated as a “combination” of components. In *State ex rel. The Plain Dealer v. Ohio Dep’t of Ins.*, 687 N.E.2d 661, 674–75 (Ohio 1997), the court cited *Anaconda Co. v. Metric Tool & Die Co.*, 485 F. Supp. 410, 422 (E.D. Pa. 1980), which noted, in reliance on the Second Circuit case of *Imperial Chem. Indus. v. Nat’l Distillers and Chem. Corp.*, 342 F.2d 737, 742 (2d Cir. 1965), that “a trade secret can exist in a combination of characteristics and components, each of which, by itself, is in the public domain, but the unified process, design and operation of which, in unique combination, affords a competitive advantage and is a protectable secret.”

This Court previously determined, after argument and briefing, that the question of definiteness is one for the Court to make, ideally before the matter goes to the jury. (*See* Doc. No. 347, Defendants’ Supplemental Brief on Definiteness Requirement; Doc. No. 348, Plaintiffs’ Response to Defendants’ Supplemental Brief on Definiteness Issue; *see also* Doc. No. 353, Tr. at 173.) In this case, the Court made that determination as to five of Coda’s seventeen alleged trade secrets, not permitting them to go to the jury. (*See* Doc. No. 364, Tr. at 2644–50.) As to the

remaining twelve, the Court expressed its continued concerns, but decided to reserve the matter until after the jury delivered its verdict as to misappropriation. The jury concluded that Goodyear had misappropriated TS 7, 11, 20, 23, and 24. (*See* Doc. No. 369, at 3.)

The Court must now render a decision as to Goodyear's renewed challenge with regard to the definiteness (or lack thereof) of these five trade secrets. If any individual trade secret is now determined to be indefinite, the jury's verdict of misappropriation cannot stand as to that trade secret.

The Court will address the challenged trade secrets in the order that Goodyear's motion addresses them.

Trade Secret 24

Coda articulated TS 24 as follows:

Coda's knowledge regarding the optimal location for placement of a pump in a tire for tire manufacturers, namely, in the sidewall close to, and above, the rim where the tire cyclically deforms in response to deformation.

(Doc. No. 223-20, at 27.)

This trade secret has the same problem as many of the others in that it claims that the secret is "Coda's knowledge." Although the Court rejected several similarly phrased trade secrets, not permitting them to go to the jury, the Court allowed for the possibility that the "namely" portion of this trade secret might serve to render it more definite by specifying that the "optimal location" was "in the sidewall close to, and above, the rim where the tire cyclically deforms[.]" But the evidence at trial only served to show that this phraseology was *anything but* definite. Hrabal himself offered numerous explanations for the meaning of this phrase.

In its brief in opposition to Goodyear's renewed motion, Coda argues both that it must be presumed that the jury followed the Court's instructions with respect to trade secret claims (Doc.

No. 385, at 10–11)¹³ and that the Sixth Circuit holds that “[w]hether information constitutes a trade secret is a question of fact” (*id.* at 11, quoting *AtriCure, Inc. v. Jian Meng*, 842 F. App’x 974, 979 (6th Cir. 2021) (further citations omitted)). While both of these propositions are true, Coda disregards entirely that the “definiteness” determination is one for the Court in the first instance, a determination that this Court reserved as to several of Coda’s trade secrets, including TS 24. (*See also* Doc. No. 387, at 7 (challenging Coda’s reference to the verdict as proof that its “secrets” were adequately defined, and noting that this is a matter for the Court, not the jury).) Therefore, Coda’s arguments do not become operative until definiteness is first determined, and even then there must be a “legally sufficient evidentiary basis enabling a reasonable jury to make” a finding that a trade secret exists.

Goodyear points out that, when Hrabal was questioned at trial about his 2007 PCT application (Ex. P-466) and the 2008 *Tire Technology* article (Ex. D-058) regarding locating a peristaltic pump in the tire sidewall close to, and above, the rim where the tire cyclically deforms (for example, in the lug boss portion of the sidewall), Hrabal indicated that this was “public” knowledge. (Doc. No. 356, Tr. at 625 (“Q. So locating a peristaltic pump in the tire sidewall near the rim in an area where it cyclically deforms was not a trade secret? A. This is public.”).) When pressed about whether the lug boss is in the tire sidewall, Hrabal testified that it was. (*Id.*, Tr. at 666 (“Q. The lug boss is in the tire sidewall, right? A. Lug boss is tire sidewall extension between the tire and the rim. It’s just --. Q. It’s in the sidewall? A. It’s part of the tire sidewall.”).) In fact,

¹³ The Court instructed the jury at some length about trade secrets. It directed, *inter alia*, that the jury must find “that Coda proved by a preponderance of the evidence that it possessed specific identifiable trade secrets[.]” (Doc. No. 365, Tr. at 2682), that “the information for which protection is sought [is defined] with sufficient definiteness to permit the jury to apply the criteria for protection and to determine the fact of an appropriation[.]” (*id.*, Tr. at 2683), and that the information was not “generally known or readily ascertainable” (*id.*, Tr. at 2684).

Hrabal contradicted himself many times on whether the lug boss is part of the sidewall. (*Compare* Doc. No. 356, Tr. at 622–23 (“in the sidewall”), at 624 (“part of the tire sidewall”), at 642 (“part of the tire sidewall”), *with id.* Tr. at 658 (“not in the sidewall,” but rather “on” the sidewall); *see also id.*, Tr. at 661 (Court overruling plaintiff’s counsel’s objection to continued questioning of Hrabal and noting: “The reason I was allowing it is because he keeps changing his answer. And I’m not sure what his final answer is.”).)

In its brief in opposition to Goodyear’s renewed motion, Coda challenges Goodyear’s “[c]it[ation] to snippets of the record[.]” (Doc. No. 385, at 14.) Coda claims that Hrabal’s testimony, taken as a whole, provides “no clear admission that would provide a basis for setting aside the jury’s verdict.” (*Id.*, citing *Kusens v. Pascal Co., Inc.*, 448 F.3d 349, 360 (6th Cir. 2006) (“evidence must be construed most strongly in favor of the nonmovant”).) Once again, Coda is assuming that TS 24 was properly sent to the jury, having first passed the “definiteness” test. But that determination was reserved by the Court and can be made now.

Both here (*see* Doc. No. 385, at 14–16) and in its original response to Goodyear’s Rule 50 motion, Coda insists that the lug boss portion of the sidewall about which Hrabal testified (and upon which Goodyear relies) “is not in the sidewall that’s referred to in trade secret 24.” (Doc. No. 364, Tr. at 2559.) At trial, Coda’s counsel argued that “Trade secret 24 is talking about a normal standard sidewall like what’s in [Figure] 2A [of the 2007 PCT].” (*Id.*) Elsewhere Coda argued that “the sidewall [in TS 24] is a traditional sidewall. It doesn’t say in the special addition to a sidewall that’s shown in the 2007 PCT.” (*Id.*, Tr. at 2561.) In its opposition brief, Coda claims that “Hrabal made clear that a ‘lug boss’ is not part of a conventional tire sidewall.” (Doc. No. 385, at 14–15.) But the descriptive words “normal” or “standard” or “traditional” or “conventional” are not in TS 24. Furthermore, Coda itself has repeatedly described the lug boss as being part of the tire sidewall.

(*See, e.g.*, Ex. P-322, at 41–43; Ex. D-90, at 33–35.) It is this evidence, not counsel’s arguments, that are the focus of the Court’s analysis.

Elsewhere in the Rule 50 arguments relating to TS 24 that were made at trial, the Court itself noted that there had been much discussion about the relationship between the optimal location of the pump and prevention of rim crush. (Doc. No. 364, Tr. at 2614 (“For instance, the one [TS 24] that we spent a lot of time talking about an hour ago was when we talked about the location so that it would prevent rim crush. Well, so that it would prevent rim crush is not in [TS 24]. So that is why I thought it was essential, imperative that we know exactly what the trade secret was with particularity so we wouldn’t be sitting here saying, well, what does that mean?”).)

Thus, although Coda’s opposition brief argues that this Court must credit the jury’s findings with respect to TS 24, the argument ignores the fact that, as to the threshold determination on definiteness, the Court probably should not have sent TS 24 to the jury because, based on the testimony at trial, Coda failed to meet its “burden of defining the information for which protection is sought with sufficient definiteness to permit a court to apply the [statutory] criteria for protection . . . and to determine the fact of an appropriation.” *TLS Mgmt. & Mktg. Servs.*, 966 F.3d at 53. Rather, the testimony showed that the language of the trade secret was susceptible to *too many* interpretations regarding the so-called “optimal location” and shed no light on *which* interpretation might be the one Coda claimed as secret.

The Court concludes that TS 24 does not meet the threshold requirement of definiteness and should not have been sent to the jury—with the necessary result that the jury’s verdict as to TS 24 must be set aside. But even if this determination is incorrect, TS 24 was not “secret” and no reasonable jury could have concluded otherwise on this record.

This Court allowed TS 24 to go to the jury on the chance that the “namely” portion of TS 24 might have sufficiently articulated something secret. But the record shows that Coda published the “‘namely’ secret” in its 2007 PCT publication and Hrabal published it in his 2008 *Tire Technology* article. (See Doc. No. 376, at 10–14 (marshaling the trial testimony revealing that TS 24 was not secret and had been repeatedly published).)

In light of the above, Goodyear’s Rule 50(b) motion as to TS 24 is granted and the jury’s verdict as to TS 24 is set aside.

Trade Secret 7

Coda articulated Trade Secret 7 as follows:

Coda’s design and development of a multi-purpose interface for transporting air in a self-inflating tire that can [1] connect to the air source, [2] connect to the tire interior, [3] connect to the peristaltic pump, [4] serve as an end to the peristaltic pump, [5] connect to the regulator, [6] carry the regulator, [7] go around or through the bead, [8] go around or through the tire layers, [9] click to the bead and [10] [hold] the filter.

(Doc. No. 223-20, at 25 (numbering added).)

As argued by Goodyear, the “design” this trade secret references is in vague, functional terms (*i.e.*, an interface “that can” accomplish certain ends). But there is no detail as to how the functions are to be carried out and, importantly, there is no articulation of the actual “design and development” of any such interface that is the actual subject of the trade secret. “[D]isclosures that only reveal the end results of, or functions performed by, the claimed trade secrets, and various concepts, elements, or components that make up designs” do not satisfy the [definiteness] requirement.” *UOP LLC v. Exterran Energy Sols., L.P.*, No. 4:21-cv-2804, 2021 WL 8016712, at *1 (S.D. Tex. Sept. 28, 2021) (citation omitted).

In opposition, Coda argues that the jury could have credited Hrabal’s explanation of the “specific value of trade secret 7 . . . [as] allow[ing] for integration of separate functions in a single unit.” (Doc. No. 385, at 17 (citing Doc. No. 355, Tr. at 459).) That might explain its functional value, but it sheds no light on how that fact would render the articulation of TS 7 “definite.”

Coda further argues in opposition that the *UOP* case cited by Goodyear is not binding and is inapposite because it involved a motion to compel discovery. (Doc. No. 385, at 18.)¹⁴ Coda relies instead upon the recent Sixth Circuit decision in *Caudill Seed*, *supra*, which arose in the context of a Rule 50(b) motion. With absolutely *no* explanation, Coda simply conclusorily asserts that “Goodyear’s challenge fails under *Caudill*, 2022 WL 16846585, at **6–7.” (Doc. No. 385, at 18.) As explained, *supra*, the Court does not agree that *Caudill Seed* is sufficiently on point to offer guidance as to the requisite definiteness (or lack thereof) of any of the trade secrets here, including TS 7, which relates to the design and development of a multi-purpose interface. Nor does the conclusory one-liner in Coda’s brief shed any light on Coda’s reasoning. In *Caudill Seed*, the plaintiff had physical, concrete proof that went “beyond merely listing technical concepts” and “had a collection of documents that showed ‘the process from the seed all the way to the making of [the product].’” *Id.* at *6. The *Caudill Seed* plaintiff was able to “establish that ‘the combination of known elements or components [in its asserted trade secret] [was] unique.’” *Id.* at *5 (citation omitted). There is no such evidence here.

The Court concludes that TS 7 does not meet the threshold requirement of definiteness and should not have been sent to the jury—with the necessary result that the jury’s verdict as to TS 7

¹⁴ Coda also argues, oddly, that “even under the exacting standards for claiming an invention in a patent, the law allows for use of functional language.” (Doc. No. 385, at 18 n. 6 (citing 35 U.S.C. § 112(f)).) The claims tried to the jury here did not involve patents. Even so, as Goodyear argues in its reply, “even § 112(f) doesn’t allow a patentee to assert functional claims without specifying structure, like Coda tries to do here.” (Doc. No. 387, at 13.)

must be set aside. But even if this determination is incorrect, there is no evidence of use or disclosure by Goodyear of a ten-function interface, and no reasonable jury could have concluded otherwise on this record.¹⁵ Coda's own expert, (Edward) Bryan Coughlin, testified only vaguely about Ex. P-13 (U.S. Patent No. 8,852,371) as "list[ing] an interface where a filter and an air intake system are able to draw air from the outside, pass it under the bead and into the tire cavity." (Doc. No. 359, Tr. at 1638.) This testimony completely fails to identify all ten of the claimed functions in Goodyear's supposedly offending patent.

In light of the above, Goodyear's Rule 50(b) motion as to TS 7 is granted and the jury's verdict as to TS 7 is set aside.

Trade Secret 11

Coda articulated Trade Secret 11 as follows:

Coda's knowledge of how to design and develop self-inflating tire pump and groove solutions, consisting of [1] round pump tubing in an outward-facing groove with straight, angled interior geometry; [2] pump tubing with geometry that interlocks with its seat; [3] pump tubing with elliptical interior cross-section; [4] variant pump tube, groove and chamber dimensions, size and materials; [5] pump tube and groove design to minimize internal friction; [6] a "tubeless" pump solution, (*i.e.*, a pump that may compose an integral part of tire); [7] cross-section designs that minimize stress on compression in order to improve durability; and [8] tubing with [reinforced] wall.

(Doc. No. 223-20, at 25 (numbering added).)

TS 11 is another one that claims "knowledge" as a trade secret—"knowledge of how to design and develop self-inflating tire pump and groove solutions." But the bulk of the trade secret as articulated is no more than an undifferentiated list of components, which, as already noted, cannot meet the definiteness requirement. *UOP LLC*, 2021 WL 8016712, at *1. And, to make

¹⁵ Goodyear also argues in its reply brief that TS 7 is not secret and the "Coda offers nothing to the contrary in its opposition." (Doc. No. 387, at 13.) Presumably, Coda concedes this point.

matters worse, some of those components are so vague as to be meaningless, *e.g.*, claiming knowledge of “variant pump tube, groove and chamber dimensions, size and materials[,]” but without disclosing what the variant dimensions, variant sizes, and/or variant materials are; or claiming “pump tube and groove design to minimize internal friction[,]” but failing to disclose *what* that friction-minimizing design is.

In opposition, Coda argues that TS 11 “concerned the various considerations for designing the groove of a tube-in-groove-type self-inflating tire.” (Doc. No. 385, at 20.) It claims that Goodyear’s arguments fail because the jury “was properly instructed and found against Goodyear on trade secret 11.” (*Id.*) Again this jumps ahead of the threshold analysis of definiteness.

Coda asserts that TS 11 is not indefinite because it “listed at least eight specifics that comprise Coda’s knowledge.” (*Id.*) In support of this argument that these “eight specifics” make TS 11 definite, Coda points to Hrabal’s testimony regarding “a key hurdle he overcame—the problem of the pump tube ‘walking away.’” (*Id.* at 20–21, quoting Doc. No. 355, Tr. at 433–35; 458–59.) But TS 11 contains no mention that this particular combination (or choice) of components solves the “walking away” problem. If Coda was trying to claim as a trade secret its solution to the “walking away” problem, it failed to articulate that in TS 11. In fact, Coda actually included that “secret” in TS 12, which it withdrew before trial.¹⁶

¹⁶ TS 12 stated:

Coda’s knowledge regarding the pitfalls of pump tubes of the self-inflating tire “walking away” from their seats during tire rotation, and the need for interlocking structures to prevent it from happening.

(Doc. No. 223-1, Declaration of David M. Maiorana, at 25.)

Coda also argues that Hrabal offered plenty of proof that TS 11 was “secret.” Coda points to Hrabal’s testimony regarding his “great efforts to preserve the secrecy of his technology[.]” (Doc. No. 385, at 20 (citing its argument relating to TS 7, which cited Doc. No. 355, Tr. at 369–94, 452, 540, 542).) But these types of broad references to Hrabal’s testimony regarding the alleged secrecy of his “technology” do not suffice to pinpoint evidentiary proof as to the secrecy of TS 11 in particular.

In reply, Goodyear correctly notes that the “secret” in TS 11 is “knowledge of how to design and develop self-inflating tire pump and groove solutions, consisting of” a combination of eight elements or components. (Doc. No. 387, at 16.) Coda does not actually articulate the “knowledge” and, importantly, it makes no showing that the eight-part combination was not generally known or readily ascertainable in 2009.

The Court concludes that TS 11 does not meet the threshold requirement of definiteness and should not have been sent to the jury—with the necessary result that the jury’s verdict as to TS 11 must be set aside. But even if this determination is incorrect, there is neither evidence of secrecy on Hrabal’s part nor of use/disclosure by Goodyear of Hrabal’s eight-element solution, and no reasonable jury could have concluded otherwise on this record. Nor does Coda refute Goodyear’s argument that Hrabal testified that he disclosed only one of the eight elements in TS 11 (the second one) and also admitted that this one element was in his prototype. (*See* Doc. No. 355, Tr. at 433–34.)

In light of the above, Goodyear’s Rule 50(b) motion as to TS 11 is granted and the jury’s verdict as to TS 11 is set aside.

Trade Secret 20

Coda articulated Trade Secret 20 as follows:

Coda’s knowledge of how to design and develop self-inflating tire systems with circulating and non-circulating pump variations comprised of [1] the disclosure of technical information through observations and descriptions of the three-way valve regulator and explanations of the function and air-paths for the states of recirculation and inflation; [2] closure elements related to recirculation systems and a pressurized air reservoir that would permit the storage of air within the system without the need to engage the pump tube with each tire revolution; [3] recirculation at different pressures, such as ambient pressure; [4] recirculation through various paths, such as through the tire, the atmosphere and the pump tube; [5] the safety benefit of recirculating around the pump tube isolated from the tire cavity; [6] a check valve on intake (between the pump tube and the atmosphere) to only permit air in when pressure in the pump tube falls below atmospheric pressure; and [7] a check valve on output, (between the pump tube and tire interior) to only allow air into the tire when pressure in the pump tube exceeds the tire pressure.

(Doc. No. 223-20, at 26 (numbering added).)

Again we have a trade secret claiming protection for “knowledge of how to design and develop” something, with no disclosure of what that knowledge is and/or what the design or development is. Although the trade secret lists seven components, it does not disclose how they fit together (*i.e.*, how they are designed) to create “self-inflating tire systems with circulating and non-circulating pump variations[.]” Moreover, as outlined in Goodyear’s motion (Doc. No. 376, at 18–19), the testimony of neither Hrabal nor Coughlin sheds any clarifying light on the subject.

Coda’s brief in opposition offers no argument as to why TS 20, as articulated, is definite. It merely outlines all the testimony from which the jury could find misappropriation and states “the jury resolved [the definiteness] question against Goodyear after being properly instructed.” (Doc. No. 385, at 23.) Again Coda is ahead of the analysis.

Coda argues that TS 20 “concerns the design considerations for constructing the overall SIT assembly for a self-inflating tire.” (Doc. No. 385, at 21.) But that is not what TS 11 *says*.

Goodyear in its reply aptly points out (with reference to its motion, Doc. No. 376, at 18) that “Coda skirts the myriad questions raised by its own description.” (Doc. No. 387, at 17 (identifying several questions: “what information? . . . what observations, made by whom? . . . what are these descriptions? . . . what functions and air-paths?” . . . what different pressures? . . . what various paths? . . . what safety benefit did it provide?”).) Coda argues that these questions “trade[] rhetoric for evidence.” (Doc. No. 385, at 23 (citing Doc. No. 355, Tr. at 451:10–23).) The Court fails to see how Hrabal’s cited testimony (quoted in full below) has any evidentiary value:

Q. . . . Trade secret 20 is Coda’s knowledge of how to design and develop self-inflating tire systems with circulating and non[-]circulating pump variations, comprised of the disclosure of technical information through observations and descriptions of the three-way valve regulator, and explanations of. And then it lists a number of bullet points of technical items that were related to the regulator.

Do you agree with that?

A. Yes.

Q. Okay. And does this relate to these specifics [sic] technical items in relation to your three-way valve regulator?

A. Yes.

(Doc. No. 355, Tr. at 451.)

The Court concludes that TS 20 does not meet the threshold requirement of definiteness and should not have been sent to the jury—with the necessary result that the jury’s verdict as to TS 20 must be set aside. But even if this determination is incorrect, there is neither evidence of secrecy on Hrabal’s part nor of use/disclosure of TS 20 by Goodyear, and no reasonable jury could have concluded otherwise on this record. As Goodyear pointed out in its reply, any effort by Coda to rely on disjointed testimony regarding some—but not all—of the seven required elements of TS 20 (*see* Doc. No. 385, at 22–23) is insufficient to prove secrecy as to the entire combination. *See*

Caudill Seed, 2022 WL 16846585, at *5 (“[T]he plaintiff must establish that ‘the combination of known elements or components is unique.’ . . . Because all of a combination trade secret’s elements may individually be publicly known, the uniqueness of the combination is critical to establishing trade-secret protection.”). In addition, there is no evidence that Hrabal disclosed the entire combination of elements to Goodyear, nor is there evidence that Goodyear used that combination.¹⁷

In light of the above, Goodyear’s Rule 50(b) motion as to TS 20 is granted and the jury’s verdict as to TS 20 is set aside.

Trade Secret 23

Coda articulated Trade Secret 23 as follows:

Coda’s development of a functional self-inflating tire as demonstrated by the test results confirming that the tire pump can generate pressure higher than the pressure in the tire cavity, through [1] the test results showing that the pump placed on the tread could generate 6.5 absolute atmospheres of pressure (5.5 relative atmospheres); [2] the test results showing that the tube-in-groove pump of the prototype could generate 3.3 absolute atmospheres of pressure; and [3] test results that demonstrated that the Flap Tubes could generate 1 relative atmosphere of pressure.

(Doc. No. 223-20, at 27 (numbering added).)

Goodyear’s current motion makes no specific argument that TS 23 is indefinite, nor did it make any such argument in its original motion. (*See* Doc. No. 360, at 4.) The Court, therefore, assumes there is no challenge to definiteness as to TS 23 and will, therefore, not reconsider its

¹⁷ Coda claims that “Goodyear used both the dead space and the recirculation concepts in its patents and AMT project.” (Doc. No. 385, at 22 (citing portions of Hrabal’s testimony).) But use of one or two elements is not proof of use of the entire combination. As aptly noted in Goodyear’s reply, that would be “just like saying that using carbonated water is enough to misappropriate the secret formula for Coca-Cola.” (Doc. No. 387, at 19.)

original decision to send TS 23 to the jury. That said, Goodyear also raises three substantive challenges to the jury's verdict on TS 23, which the Court now addresses.

In Goodyear's first and third arguments, it asserts that Coda's only evidence of "use" by Goodyear is an email from Hrabal (Ex. P-471), following the January 2009 meeting, that disclosed a single test result (*i.e.*, achieving 6.5A pressure with the prototype) (Doc. No. 376, at 20), and that, in any event, this test result does not even match the prototype test result in TS 23 (*i.e.*, 3.3A pressure) and leaves out the other two "secret" test results (*id.* at 21). Goodyear asserts that Coughlin never testified that Goodyear did anything with this information (Doc. No. 376, at 20 (citing Doc. No. 359, Tr. at 1639–40)), and that Hrabal had no knowledge of Goodyear ever disclosing this test result email to anyone (*id.* (citing Doc. No. 356, Tr. at 598)).

In opposition, Coda argues that there were "numerous other inferences" (besides Coughlin's testimony) regarding Coda's testing results—that must be weighed in Coda's favor—from which the jury could have reasonably inferred that Goodyear "relied heavily on Coda's testing data." (Doc. No. 385, at 24 (citing Ex. P-425, at 3–4; Ex. P-202; Doc. No. 357, Tr. at 943; Doc. No. 361, Tr. at 1892.)) The Court sees little to no support in any of Coda's record references. Nor does Coda make a convincing argument that the lack of "match" between the test results is irrelevant, since, according to Coda, "it is plain that Goodyear relied on Coda's testing data." (*Id.*) This is merely argument, without supporting evidence.

Goodyear's third argument is that Hrabal's post-January 2009 meeting email was not marked "confidential," which the non-disclosure agreement between the parties required in order that information be protected. (Doc. No. 376, at 20–21 (citing Ex. P-585 at ¶ 8).) Goodyear claims that this also "shreds" any claim of secrecy. (*Id.*)

In opposition, Coda unconvincingly asserts that the email “was plainly shared in connection with the parties’ discussions under the non[-]disclosure agreement, and the OUTSA does not require such markings to establish secrecy.” (Doc. No. 385, at 24 (citations omitted).) Coda has consistently relied upon the non-disclosure agreement and it cannot now disregard one of its key requirements.

All that said, it appears clear that TS 23 actually reveals no secret at all. Testimony shows that the concept of a self-inflating tire was not new when Coda and Goodyear engaged in conversations in 2009. TS 23 is merely a bald declaration that Coda developed such a tire that is “functional.” Coda’s attempts to confirm that success by making reference to certain test results does not convert TS 23 into a trade secret and Coda does not argue that these testing results themselves are the trade secret.

In light of the above, Goodyear’s Rule 50(b) motion as to TS 23 is granted and the jury’s verdict as to TS 23 is set aside.

III. Remittitur of Jury’s Award of Punitive Damages

Having determined that Goodyear is entitled to judgment as a matter of law as to liability for Coda’s claims as to Trade Secrets 24, 7, 11, 20 and 23, it follows that the jury’s award of damages, including punitive damages, must be set aside as well. But even if defendants were not entitled to judgment on liability as to each remaining trade secret, the Court would be required to reduce the jury’s \$61.2 million award of punitive damages under Ohio law.¹⁸

¹⁸ Goodyear also argues that the entire punitive damages award should be set aside because Coda failed to prove actual malice. (Doc. No. 376, at 22.) Although the Court need not address this issue because it has determined that Goodyear is entitled to judgment as a matter of law on the merits of the remaining trade secrets, the Court finds that if any of the trade secrets had been definitive enough to be presented to the jury then there would have been sufficient evidence presented to the jury to support the jury’s finding of actual malice in this case. (*E.g.*, Doc. No. 356, Tr. at 599 (Hrabal’s testimony that Goodyear took photos of his prototype without his permission); Ex. P-407 at 2 (internal Goodyear document saying to “make the best product and worry about the IP later.”).)

Ohio Rev. Code § 1333.63(B) explicitly limits any award of punitive damages for the misappropriation of trade secrets to “an amount not exceeding three times” the compensatory damages award. Plaintiffs ask this Court to ignore this explicit Ohio statutory damages cap, and controlling Ohio Supreme Court case law, and instead hold Section 1333.63(B) unconstitutional. This Court must follow Ohio law in this case and the Court is not convinced that Section 1333.63(B) is unconstitutional on its face or as applied under either the Ohio Constitution or the United States Constitution.

Plaintiffs admit that Ohio Supreme Court precedent has upheld the constitutionality of punitive damages caps. *Arbino v. Johnson & Johnson*, 880 N.Ed.2d 420, 441 (Ohio 2007) (“[P]recedent conclusively establishes that regulation of punitive damages is discretionary and that states may regulate and limit them as a matter of law without violating the right to a trial by jury.”). The Ohio Supreme Court recently heard an as-applied challenge to another damages cap. *Brandt v. Pompa*, No. 2021-0497, 2022 WL 17729469 (Ohio Dec. 16, 2022). In holding that that compensatory-damages cap for noneconomic losses was unconstitutional as applied to child victims of sexual abuse, to the extent it fails to include an exception for victims who have suffered permanent and severe psychological injuries, the Ohio Supreme Court distinguished but did not overrule *Arbino* or otherwise comment on statutory caps to punitive damages. *Brandt*, 2022 WL 17729469, at 6–10.¹⁹ As such, Section 1333.63(B) remains good law, as does the Ohio Supreme Court precedent upholding caps on punitive damages.

Further, the Supreme Court of the United States has recognized the constitutionality of caps on punitive damages awards. *E.g., Cooper Indus., Inc. v. Leatherman Tool Grp., Inc.*, 532

¹⁹ See also Doc. No. 389, Defendants’ Notice of Subsequent Authority (citing *Brandt*); Doc. No. 390, Plaintiffs’ Response to Notice of Supplemental Authority.

U.S. 424, 433, 121 S. Ct. 1678, 149 L. Ed. 2d 674 (2001). Moreover, it is “grossly excessive” punitive damages that the Supreme Court has found can be unconstitutional. *BMW of N. Am. v. Gore*, 517 U.S. 559, 568, 116 S. Ct. 1589, 134 L. Ed. 2d 809 (1996). The Supreme Court has instructed courts reviewing punitive damages to consider three guideposts, including “the disparity between the actual or potential harm suffered by [the plaintiff] and [the] punitive damages award.” *Id.* at 575. Although the Court has “decline[d] . . . to impose a bright-line ratio which a punitive damages award cannot exceed[,]” its “jurisprudence and the principles it has now established demonstrate . . . that, in practice, few awards exceeding a single-digit ratio between punitive and compensatory damages, to a significant degree, will satisfy due process.” *State Farm Mut. Auto Ins. Co. v. Campbell*, 538 U.S. 408, 424–25, 123 S. Ct. 1513, 155 L. Ed. 2d 585 (2003). Here, the jury’s award of punitive damages (\$61.2 million) was more than 21 times its award of compensatory damages (\$2.8 million), which suggests this Court would be required to reduce the jury’s award of punitive damages even without Ohio’s statutory cap.

Thus, even if defendants were not entitled to judgment on liability as to each remaining trade secret, the Court would be required under Ohio law to reduce the jury’s award of punitive damages to \$8.4 million.

IV. Conclusion

Upon revisiting the question of the definiteness of Coda’s articulation of Trade Secrets 24, 7, 11, and 20, the Court concludes that none of them meets this threshold requirement and none of them should have been sent to the jury. In any event, Goodyear was also entitled to judgment as a matter of law under Rule 50(a) on the merits of Coda’s claims as to Trade Secrets 24, 7, 11, 20 and 23, and is also now entitled to judgment notwithstanding the verdict under Rule 50(b). As a result, the jury’s verdicts are set aside, including any verdicts with respect to damages.

This ruling resolves Count Four of the first amended complaint entirely in Goodyear's favor. The Court will issue a separate ruling with respect to plaintiffs' equitable claims in Counts One, Two and Five, Count Three having already been voluntarily dismissed by the parties.

IT IS SO ORDERED.

Dated: March 31, 2023



HONORABLE SARA LIOI
UNITED STATES DISTRICT JUDGE

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

CODA DEVELOPMENT s.r.o., CODA)	CASE NO. 5:15-cv-1572
INNOVATIONS s.r.o., and FRANTISEK)	
HRABAL,)	
)	
)	
PLAINTIFFS,)	JUDGE SARA LIOI
)	
vs.)	FINDINGS OF FACT,
)	CONCLUSIONS OF LAW,
GOODYEAR TIRE & RUBBER)	AND ORDER
COMPANY and ROBERT BENEDICT,)	
)	
)	
DEFENDANTS.)	

This matter is before the Court for findings of fact and conclusions of law pursuant to Fed. R. Civ. P. 52(a)(1) on the claims of plaintiffs, Coda Development s.r.o., Coda Innovations s.r.o., and Frantisek Hrabal (“Hrabal”) (collectively, “Coda” or “plaintiffs”), for correction of inventorship under 35 U.S.C. § 256¹ and on the affirmative defense of laches asserted by defendants Goodyear Tire & Rubber Co. and Robert Benedict (“Benedict”) (collectively, “Goodyear” or “defendants”).

¹ Specifically, plaintiffs’ remaining equitable claims include Count One for correction of inventorship of U.S. Patent 8,042,586 (“the ‘586 Patent”) (*see* Doc. No. 53, First Amended Complaint, ¶¶ 113–26), Count Five for declaratory relief (*id.* ¶¶ 180–83), and the request for an injunction (*id.*, Prayer for Relief). Plaintiffs affirmatively abandoned Count Two—the joint inventorship claim regarding U.S. Patent 8,113,254—in light of the jury’s verdict with regard to trade secret numbers 1 and 2. (*See* Doc. No. 378, at 7 n.1.) That verdict has not been disturbed by any of the Court’s post-trial rulings. Therefore, the Court acknowledges Coda’s abandonment and dismisses Count Two with prejudice.

Except for trial transcripts, all page number references herein are to the consecutive page numbers applied to each individual document by the Court’s electronic filing system, a practice recently adopted by the Court (which differs from the directives in the Initial Standing Order (Doc. No. 19)). Because the various volumes of trial transcripts are consecutively numbered from page 1 to page 2804, rather than citing to any individual transcript’s page number applied by the electronic filing system, the Court will instead cite to the actual transcript page number(s) applied by the court reporters.

The parties filed briefs on the remaining equitable claims and defenses. (*See* Doc. No. 378, Plaintiffs’ Opening Brief on Equitable Claims; Doc. No. 380, Defendants’ Brief in Opposition to Plaintiffs’ Equitable Claims; Doc. No. 384, Plaintiffs’ Reply Brief in Support of Its Equitable Claims; Doc. No. 377, Defendants’ Memorandum in Support of Their Affirmative Defense of Laches; Doc. No. 381, Plaintiffs’ Brief in Opposition to Defendants’ Affirmative Defense of Laches; Doc. No. 386, Defendants’ Reply in Support of Their Affirmative Defense of Laches.) These matters are now ripe for resolution.

I. SUMMARY BACKGROUND

In August 2015, Coda filed this lawsuit against Goodyear, alleging theft of twenty-seven trade secrets and seeking correction of inventorship of certain of Goodyear’s patents, as well as various forms of equitable relief. During discovery, Coda withdrew misappropriation allegations as to ten of its trade secrets, reducing the number of alleged misappropriated trade secrets to seventeen.²

A jury trial was conducted in September 2022, as to the trade secrets claim—Count Four of the first amended complaint (Doc. No. 53 ¶¶ 149–79). After the parties rested, the Court found that five of the alleged trade secrets were not definite enough to go to the jury. (*See* Doc. No. 364, Transcript [“Tr.”] at 2644–50.) Of the twelve allegedly misappropriated trade secrets that were

² Because Coda’s disclosure took place entirely orally, Goodyear had moved early on for an order directing Coda to articulate a “closed list” of alleged trade secrets that it had allegedly disclosed, so as to ward off attempted modification of the trade secrets as the case proceeded through discovery and trial preparation. This was not an unfounded fear; in fact, three months after this case commenced, in Coda’s November 9, 2015, opposition to Goodyear’s motion to dismiss, which argued in part that the complaint was not sufficiently specific, Coda simply argued that “Goodyear knows what it took and knows full well how Coda’s secrets were incorporated into its patents[.]” (Doc. No. 23, Plaintiffs’ Opposition, at 7.) In light of this apparent strategy of evasiveness on Coda’s part, the Court granted Goodyear’s request for a “closed list.” (*See* Minute Order (non-document), dated 11/1/2019; Doc. No. 82, Memorandum Opinion and Order.) Coda first listed twenty-seven secrets (*see* Doc. No. 223-20, Coda’s Supplemental Responses to Defendants’ First Set of Interrogatories, at 24–27) but, by the time of trial had withdrawn ten and proceeded with only seventeen (*see* Doc. No. 223-1, Email from Scott Richey to Calvin Griffith dated 2/3/2021).

sent to the jury,³ the jury rendered verdicts in favor of Coda and against Goodyear on only five, and it awarded Coda both compensatory and punitive damages. After the jury's verdicts were delivered, Goodyear renewed its motion under Fed. R. Civ. P. 50(b) for judgment as a matter of law under Fed. R. Civ. P. 50(a) as to plaintiffs' trade secrets misappropriation claim. The Court has now, by separate memorandum opinion and order, resolved in defendants' favor the renewed Rule 50(b) motion for judgment as a matter of law relating to that claim, setting aside the jury's verdicts in all respects. (Doc. No. 392.)

Therefore, the only substantive claim remaining is Count One for correction of inventorship under 35 U.S.C. § 256 as it relates to Goodyear's '586 Patent, which the Court had scheduled for a bench trial after the jury trial on plaintiffs' trade secrets misappropriation claim. Plaintiffs subsequently informed the Court that "no further trial proceedings are required and that Coda's equitable claims can be decided through briefing[.]" (Doc. No. 371, Notice as to Inventorship Claims and Request to Cancel Scheduled Bench Trial, at 1.) Defendants were in agreement (*id.*) and the Court approved that plan (*see* Doc. No. 372, Order).

In its briefing, Coda alleges that Hrabal, not the named inventors Robert Allen Losey ("Losey")⁴ and/or Robert Leon Benedict ("Benedict"), is "the rightful sole inventor of the '586 [P]atent." (Doc. No. 378, at 8.) Coda claims that Hrabal "conceived of the novel feature of the '586 Patent, which is the placement of a peristaltic tube in a sidewall groove such that the tube is closed by the sidewall compressing itself." (*Id.*) Coda argues that "an order should issue to the Director of the United States Patent and Trademark Office to correct the inventorship of the '586 Patent,

³ For these twelve alleged trade secrets, the Court expressly reserved its right to revisit the legal issue of definiteness, as well as other issues raised in Goodyear's Rule 50 motions. (Tr. at 2650–51.)

⁴ Losey was originally a named defendant but was voluntarily dismissed by Coda on February 1, 2021. (*See* Doc. No. 217, Agreed Motion and Stipulation for Partial Dismissal, at 1 (also dismissing the third cause of action).)

naming Mr. Hrabal as the sole inventor.” (*Id.* at 9.) In the alternative to correction of inventorship, Coda asserts that “the Court should equitably assign ownership of the '586 Patent to Coda.” (*Id.*) Finally, Coda asserts that, in any event, “this Court should enjoin Goodyear” in various ways or grant Coda “a reasonable royalty for any use by Goodyear of [Coda’s] trade secrets.” (*Id.*)

Goodyear asserts an affirmative defense of laches, arguing that “Coda unreasonably waited years to press its claims against Goodyear[,] . . . caus[ing] immense prejudice to Goodyear and to the judicial system [because] [p]ercipient witnesses died, unrecorded and uncorroborated secrets, allegedly orally transferred to Goodyear in 2009, were asserted as fact 13 years after their alleged transmission, leading to a trial that was conducted not on what secrets (if any) were actually conveyed orally in 2009, but on alleged secrets crafted by investors and lawyers *after this lawsuit was filed in 2015.*” (Doc. No. 377, at 5 (footnote omitted; emphasis in original).)⁵

After considering the witness testimony during the jury trial and the admitted documentary and physical evidence, the Court makes its findings of fact and conclusions of law pursuant to Fed. R. Civ. P. 52(a). These findings of fact and conclusions of law represent the Court’s consideration of the evidence in light of the pertinent law, as well as the Court’s consideration and evaluation of the witnesses’ qualifications, demeanor, and credibility. Further, any conclusion of law that may be construed to include a finding of fact is hereby adopted as a finding of fact (and vice versa). Finally, if a finding of fact or conclusion of law is pertinent to any determination other than that indicated by the heading under which it appears, it is deemed adopted as a finding of fact or

⁵ Goodyear asserts this affirmative defense as to *all* of Coda’s claims (including misappropriation of trades secrets). In light of the Court’s ruling herein, as well as its ruling on Goodyear’s renewed Rule 50(b) motion, laches need not be addressed. That said, the Court finds merit in Goodyear’s assertion of this defense. Coda claims Hrabal orally disclosed his secret SIT technology to Goodyear in 2009. Although Coda learned of Goodyear’s own SIT program (called AMT) in December 2009 and further learned of Goodyear’s supposedly offending patents no later than August 2011, it waited until August 2015 to file this lawsuit. Goodyear asserts, correctly in this Court’s view, that “Coda intentionally, and unreasonably, delayed asserting its claims, to Goodyear’s prejudice.” (Doc. No. 377, at 6.)

conclusion of law applicable to such other determination or determinations as may be appropriate. *See Reznick v. Provident Life & Acc. Ins. Co.*, 364 F. Supp. 2d 635, 636 (E.D. Mich. 2005).

II. PRELIMINARY MATTER: NEW EXHIBITS

One preliminary matter must be addressed before the Court begins its analysis and renders its decision on Coda's remaining claim.

Although the parties and the Court had already agreed to a briefing schedule (*see* Minute Order (non-document), dated 9/22/2022, setting October 13, 2022, as the date for opening briefs) following plaintiffs' unopposed request to forgo the bench trial on the inventorship claim, on September 29, 2022, plaintiffs filed, without leave, a document styled "Bench Memorandum on Inventorship Claims" (Doc. No. 373). Attached to this bench memorandum were an affidavit of Hrabal (Doc. No. 373-1) and four exhibits (Ex. P-1126, Ex. P-1127, Ex. P-1128, and Ex. P-1129). In his declaration, Hrabal attests that the four exhibits were various pieces of correspondence exchanged between him and MPR.⁶ Coda now wishes to include them in the record for the Court to consider as corroboration of Hrabal's conception of the invention in the '586 Patent.

Plaintiffs assert that, although they do not technically *need* these exhibits as proof (because Hrabal's testimony from the jury trial will be sufficient), it is within this Court's discretion to consider these exhibits, which were not presented at trial because they were not relevant to the trade secret claims. (Doc. No. 373, at 1–2 (citing cases).) With respect to why the exhibits were not presented at trial, plaintiffs are correct; but defendants importantly argue in opposition that these four exhibits should not be admitted or considered because they were never produced during

⁶ MPR was a company that Hrabal worked with beginning in the summer of 2009, and eventually hired in or around November 2009, to help him develop a technical market analysis for his SIT technology. (*See generally* Doc. No. 355, Tr. at 342, *et seq.*) MPR created a report that was admitted at trial. (*See*, Ex. P-910, Self Inflating Tire Technical Market Analysis.)

discovery in response to Goodyear's interrogatory that requested evidence of Hrabal's alleged conception of the '586 Patent. (Doc. No. 380, at 4.)

Plaintiffs have not refuted this assertion in their reply brief. Plaintiffs argue only that Goodyear can claim no "surprise" or "unfair prejudice" because it was Goodyear who subpoenaed these documents from MPR, noticed its deposition and then canceled it, and that it was Goodyear who examined Hrabal (at his deposition and at trial) about his engagement of MPR, but chose not to present the documents at trial. (Doc. No. 384, at 13.)

Coda's arguments are unavailing. If Coda wanted these documents to be part of the record in support of its inventorship claim, Coda should have proceeded with the bench trial or sought leave to admit the documents *before* it asked the Court to cancel the bench trial. At the very least, it should have advised Goodyear of its intent to present these exhibits *before* Goodyear agreed to submit the inventorship Claim to the Court on briefing based upon the jury trial record. By proceeding as it did, Coda has denied Goodyear the opportunity to cross-examine Hrabal or anyone from MPR who may have been called to testify regarding the documents. Coda, having waived the opportunity for a bench trial where it could have presented testimony regarding these documents, now unfairly prejudices Goodyear in asking the Court to consider them without giving Goodyear the opportunity to cross-examine anyone on the issue of inventorship regarding the documents.

Moreover, even if the Court were to consider Hrabal's affidavit and the four exhibits, they add nothing to the merits of the case. The exhibits reflect no more than back-and-forth emails between Coda and MPR discussing the contours of a possible market analysis to be performed by MPR. They do not show that Hrabal conceived of "a definite and permanent idea of an operative invention, including every feature of the subject matter sought to be patented." *Sewall v. Walters*,

21 F.3d 411, 415 (Fed. Cir. 1994) (citation omitted). In fact, the documents refer to several “options” or methods of “implement[ing]” the self-inflating features into a tire: “molded into the tire,” “integrated into the rim,” “independent device,” and “integrated during retread.” (Doc. No. 373-2, at 3.) These documents would not corroborate Hrabal’s claim of inventorship. They would do no more than show that Hrabal, (or perhaps someone else, as it is not clear who came up with the options), like others (including Goodyear), was thinking about different ways to create a self-inflating tire. They do not corroborate anything close to conception or invention (either in general or particularly as to the '586 claims) by Hrabal. (*See also infra* n.11.)

Accordingly, the Court will disregard Doc. Nos. 373-1, 373-2, 373-3, 373-4, and 373-5 when considering the issue before it.

III. SUMMARY CONCLUSION

Due to the complexity and detail set forth below, the Court includes at this juncture a summary of its ultimate findings and conclusions. The Court believes this summary overview will assist the reader’s understanding of the significance of any individual finding and/or conclusion set forth herein.

Coda claims that Hrabal invented what Goodyear ultimately patented in the '586 Patent; Coda is asking that Hrabal be declared the inventor of that patent. As will be set forth below, in order to prevail on this claim, Coda must establish by clear and convincing evidence that, before December 21, 2009, Hrabal conceived a definite and permanent idea of the complete and operative inventions claimed in the '586 Patent, including *every* feature or limitation of the claimed inventions. If Coda fails as to any *one* feature or any *one* limitation, it cannot prevail on its inventorship claim.

The '586 Patent contains two independent claims—Claim 1 and Claim 18—which contain, respectively, the following limitation relating to the optimal location of the “tube-in-groove pump”:

a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall [Claim 1], and

a sidewall groove extending into an outward facing side of the sidewall and positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall [Claim 18].

The Court finds that these are salient features of the invention, particularly as it pertains to the issues in this case.

Coda claims to have conceived this optimal location, but as will be set forth below, Hrabal’s optimal location (if it can even be discerned on this record) is not the same as the optimal location claimed in the '586 Patent, as made evident by the credible and convincing testimony of defendant Benedict. In fact, Hrabal’s claimed optimal location (described by him in terms of a “scissor effect” where placing the pump closest to the neutral axis—*i.e.*, the fulcrum—is optimal) is actually the opposite of what is claimed in the limitations quoted above (which require placement as far away from the neutral axis as possible).

As a result of Coda’s failure to establish that Hrabal conceived of these salient features of the two independent claims of the '586 Patent, the Court need not examine any other claims of the patent (although it finds that Coda has similarly failed to prove conception by Hrabal of the other claims, as well), as Coda cannot prevail on its claim of inventorship.

IV. FINDINGS OF FACT

In preface, the Court notes that, had the jury's verdict withstood Goodyear's Rule 50(b) motion, the Court would have been constrained by any relevant fact-finding of the jury when deciding the instant equitable matters. *Kitchen v. Chippewa Valley Sch.*, 825 F.2d 1004, 1014 (6th Cir. 1987) (“[W]hen a party has a right to a jury trial on an issue involved in a legal claim, the judge is . . . bound by the jury's determination of that issue as it affects his disposition of an accompanying equitable claim.” (citations omitted)).

Because this Court has set aside the jury's verdicts, any fact-findings are now within the Court's province to make with respect to the remaining correction of inventorship claim.⁷ *See Hanna v. Cnty. of Wood*, Nos. 88-3893/88-4057/88-4084, 1990 WL 8721, at *4 (6th Cir. Feb. 6, 1990) (concluding that the district court remained bound, in deciding the equitable issues, by the jury's findings on the legal issues because the district court had improperly set aside those findings on a Rule 50(b) motion when defendant had failed to comply with the rule's requirements—suggesting that if the Rule 50(b) motion had been properly granted, the district court would no longer have been bound by the jury's factual findings).

As noted, plaintiffs decided (and defendants agreed) to forgo the bench trial on this claim. In light of that fact, and having set aside the jury's verdicts, the Court must make its own findings of fact based on the trial record as it stands.

⁷ To the extent Coda bases its arguments with respect to the inventorship claim on the fact that the jury returned certain verdicts in its favor, because all those verdicts have been set aside, such arguments are summarily rejected. (*See* Doc. No. 384-1, Plaintiffs' Objections and Responses to Defendants' Proposed Findings of Fact on Plaintiffs' Equitable Claims, *passim*.)

A. U.S. Patent No. 8,042,586 (the '586 Patent)

1. Defendant Benedict credibly testified at trial that, prior to meeting with Coda in 2009, he had been interested in self-inflating tires “since [the] early 2000s,” that he “had been doing research in the background for quite some time[,]” and “it was something [he] had a long interest in. [He] did a lot of background research.” (Doc. No. 361, Tr. at 1830.)⁸

2. In December 2008, Benedict authored a presentation titled “Self Inflating Tires.” The presentation documents Benedict’s pre-2009 research on self-inflating tire technology, including Coda’s publicly available information. (Ex. P-389.)

3. When Benedict testified at trial about page 3 of Ex. P-389, he noted, and the Court finds, that “inflating tires with a peristaltic pump wasn’t a new idea. It’s very old.” (Doc. No. 361, Tr. at 1831.)

4. The application leading to the '586 Patent was filed on December 21, 2009, and the '586 Patent issued on October 25, 2011. The '586 Patent is titled “Self-Inflating Tire Assembly” and lists Losey and Benedict as the inventors and The Goodyear Tire & Rubber Company as the assignee. (*See* Ex. P-8, U.S. Patent No. 8,042,586.)

5. The '586 Patent identifies the field of invention as “relat[ing] generally to self-inflating tires and, more specifically, to a tire assembly incorporating a pump mechanism.” (*Id.* at 1:5–7.)

6. The '586 Patent summarizes the invention as follows:

[A] self-inflating tire assembly includes a rim having a tire mounting surface extending between first and second rim flanges; a tire mounted to the rim tire

⁸ As already noted, because the various volumes of trial transcripts are consecutively numbered from page 1 to page 2804, rather than citing to any individual transcript’s page number applied by the electronic filing system (which is the Court’s usual practice), the Court will instead cite to the actual transcript page number(s) applied by the court reporters.

mounting surface, the tire having a tire cavity, and first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region. The first sidewall includes a bending region operatively bending within a rolling tire footprint responsive to a bending strain. A sidewall groove is positioned within a compression side of a neutral axis of the bending region and an air tube is positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube. The sidewall groove operatively bends within the compression side of the bending region responsive to a bending strain within the rolling tire footprint to compress the air tube from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

(*Id.* at 1:28–46.)

7. The '586 Patent contains 19 claims. Claims 1 and 18 are independent claims, and the remainder are dependent.

8. Claim 1 of the '586 Patent recites:

1. A self-inflating tire assembly comprising:
 - a rim having a tire mounting surface extending between first and second rim flanges;
 - a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;
 - the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;
 - a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall;
 - an air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

9. Claim 2 recites:
 2. The tire assembly of claim 1, wherein the air tube and the sidewall groove are located within a sidewall region of the first tire sidewall above an upper boundary of the rim.
10. Claim 3 recites:
 3. The tire assembly of claim 2, wherein the groove surfaces contact the air tube and bend within a footprint of a rotating tire to operatively close an air tube segment within the tire footprint.
11. Claim 4 recites:
 4. The tire assembly of claim 3, wherein the air tube comprises an annular body extending substantially a circumference of a tire first sidewall.
12. Claim 5 recites:
 5. The tire assembly of claim 4, wherein the sidewall groove is annular and located proximally above the upper boundary of the rim.
13. Claim 6 recites:
 6. The tire assembly of claim 1, wherein the groove extends into an annular, substantially axially extending, sidewall surface.
14. Claim 7 recites:
 7. The tire assembly of claim 6, wherein the annular sidewall surface comprises a substantially axially oriented surface of a tire chafer protrusion located in non-contacting relationship with the rim, the groove extending into the annular sidewall surface in substantially a radial direction.
15. Claim 8 recites:
 8. The tire assembly of claim 1, wherein the sidewall groove includes a sidewall groove opening operatively sized to closely admit the air tube.
16. Claim 9 recites:
 9. The tire assembly of claim 8, wherein substantially the entirety of the air tube resides within the sidewall groove.

17. Claim 10 recites:

10. The tire assembly of claim **9**, wherein first and second angled groove surfaces define opposite sides of the sidewall groove, each angled groove surface comprising first and second tube contacting surfaces adjoining at an angled intersection, and wherein the tube contacting surfaces of the first and second angled groove surfaces operatively contact the air tube at space apart intervals surrounding and substantially circumscribing the air tube.

18. Claim 11 recites:

11. The tire assembly of claim **10**, wherein the first and second angled groove surfaces converge and join at an inward terminal groove end and operatively flex inwardly about the terminal groove end to constrict the sidewall groove and flatten a footprint segment of the air tube within the groove.

19. Claim 12 recites:

12. The tire assembly of claim **11**, wherein an inward portion of the groove at the terminal groove end is substantially U-shaped.

20. Claim 13 recites:

13. The tire assembly of claim **12**, wherein an inward portion of the groove at the terminal groove end is substantially U-shaped.

21. Claim 14 recites:

14. The tire assembly of claim **13**, wherein the first and second angled groove surfaces converge toward the inward portion of the groove.

22. Claim 15 recites:

15. The tire assembly of claim **14**, wherein the groove extends into an annular, substantially axially extending, sidewall surface.

23. Claim 16 recites:

16. The tire assembly of claim **15**, wherein the annular sidewall surface comprises a substantially axially oriented surface of a tire chafer protrusion located in non-contacting relationship with the rim and the groove extending into the annular sidewall surface in substantially a radial direction.

24. Claim 17 recites:

17. The tire assembly of claim **1**, wherein the sidewall groove is positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall at a substantially maximum distance from the neutral axis.

25. Claim 18 recites:

18. A self-inflating tire assembly comprising:
a rim having a tire mounting surface extending between first and second rim flanges;
a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;
the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;
a sidewall groove extending into an outward facing side of the sidewall and positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall, the sidewall groove being at least partially open to the outward facing side of the sidewall;
an enclosed air conducting air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube between the opposite groove surfaces from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

26. Claim 19 recites:

19. The tire assembly of claim **18**, wherein the sidewall groove and the air tube therein are recessed within the first tire sidewall outward facing side.

(*Id.* at 10:29–12:38.)

27. Coda has abandoned any claim that Hrabal is the co-inventor of the '586 Patent (or any other patent),⁹ seeking only that Hrabal be declared the sole inventor of the '586 Patent and that he be substituted for Losey and Benedict.

B. Facts Relevant to Conception and Inventorship

28. Hrabal testified about sitting at a traffic light one day and noticing the deformation in a tire sidewall. That gave him the idea to experiment with self-inflating tires and, in particular, to test whether a peristaltic pump powered by the compression of the deformation was capable of generating sufficient pressure to inflate a tire. (Doc. No. 355, Tr. at 369–70.)

29. Around 2001, Hrabal attached a peristaltic pump with a check valve to the circumference of a bicycle tire and turned the loaded bicycle tire on a stand; the assembly achieved pumping sufficient to overcome the resistance of the check valve. (*Id.* at 369–74 (Hrabal: “[I]n the experiment I spin the tire and I saw that the balloon is inflating.”); *see also* Exs. P-522 and P-523 (undated photographs of the bicycle tire prototype).) From this experiment, Hrabal “learned that peristaltic pump on the tire makes sense.” (*Id.* at 372.)

30. Around 2001 or 2002, Hrabal made his “first attempt to place the hose into the tire itself,]” by carving a groove into “the bottom part of the bead” of the tire; but he later discovered

⁹ In the first amended complaint, Count One is captioned as a “correction of inventorship” claim. (*See* Doc. No. 53, First Amended Complaint.) Therein, Coda alleges that “Hrabal is not named as an inventor in the '586 Patent[,]” (*id.* ¶ 118), that “Mr. Losey and Mr. Benedict are, through error, named in the '586 Patent as inventors[,]” (*id.* ¶ 120), and, “[i]n the alternative, Mr. Hrabal contributed to the conception of at least one of the inventions claimed in the '586 Patent[.]” (*id.* ¶ 121). Despite the allegation in ¶ 121, in post-trial briefing Coda has advanced no co-inventorship argument. (*See* Doc. No. 378, at 8 (“Hrabal is the rightful sole inventor of the '586 [P]atent”).) It is unavailing that, in its objections to Goodyear’s proposed findings of fact and conclusions of law, Coda claims that “the Court should nonetheless find that Mr. Hrabal is at least a co-inventor of the '586 [P]atent.” (*See* Doc. No. 384-1, at 29; *see also id.* at 39; 40; 164–65.) This one-line assertion in a reply brief is too little, too late, in light of the narrower argument in Coda’s opening brief. Notably, even Coda’s earlier brief filed without leave (*see* Doc. No. 373) raises no co-inventorship argument.

that “the bead is too rigid . . . for operation of the peristaltic pump in this location.” (*Id.* at 372–73; *see also* Ex. P-525 (undated photograph of this “first attempt”).)

31. Around the end of 2003, Hrabal built a testing rig so as to simulate a tire under the load of a vehicle’s weight; this allowed him to observe how different parts of a tire behave as the tire rotates under load. (*Id.* at 374–82; *see also* Exs. P-548 and P-552 (photographs of physical exhibits).)

32. By 2007 or 2008, through testing on his various prototypes, Hrabal claims to have determined an “optimal location” for a tube-in-groove pump. (*Id.* at 330, 333–34.)

33. Coda’s SIT prototype was a physical exhibit during the jury trial. (*See* Ex. P-886 (photograph of the physical exhibit).) Hrabal testified that he completed the prototype before 2009 and that a video of it being tested was publicly disclosed on Coda’s website prior to 2009. (Doc. No. 356, Tr. at 605–06.)

34. Hrabal described how he created the prototype by affixing an epoxy extension to the tire sidewall and another epoxy extension to the wheel rim and placed a tube between the two extensions to act as a peristaltic pump as the tire sidewall extension pinched the hose against the rim extension. He used this “extension” method because, not being a tire manufacturer, he did not have the ability to make a groove in the tire itself. (Doc. No. 355, Tr. at 332–33, 335; Doc. No. 356, Tr. at 605, 608.)

35. Hrabal testified that the “optimal location for the tube in groove peristaltic pump” is not visible on his prototype (Doc. No. 355, Tr. at 333–34), but he claimed that it was “behind this extension . . . in the tire sidewall inside.” (*Id.* at 334.) Hrabal testified that the sidewall and rim extensions of the prototype “are working like scissors” in which “you have to push your object towards the axis of the scissors.” (*Id.* at 334.)

36. Coda presented no evidence to independently corroborate any of Hrabal's testimony regarding his alleged conception of the relevant technology or to authenticate his undated photographs.¹⁰

37. Benedict credibly testified that the '586 Patent described the opposite principle of Hrabal's "scissor effect":

Q. Dr. Benedict, were you in court when Mr. Hrabal was describing the scissor effect?

A. Yes.

Q. And do you recall him saying if you want to cut something you have to push your object towards the axis of the scissors?

A. Yes.

Q. Are you using that idea in your patent?

A. No. Actually we're using the opposite idea. You want to be as far out as you can. You don't want to be in at the pivot point.

(Doc. No. 361, Tr. at 1882.)

38. Benedict explained that the '586 Patent's disclosure that "the sidewall groove is positioned within the compression side of the bending region a maximum distance from the neutral axis" means that "when you have bending, this point that's furthest away from the neutral axis gets the most compression. And this point furthest away on the other side gets the most extension. And then the neutral axis has neither. So if you're looking to pinch a tube by closing the slot, you want

¹⁰ Although Coda introduced at trial a non-disclosure agreement dated July 29, 2009, between itself and MPR, a third-party engineering firm purportedly hired by Coda to help it create a technical marketing analysis for Coda's SIT technology, the agreement was not executed by Coda, but only by MPR. (*See* Ex. P-627.) As already noted above, the Court will not permit Coda's improper attempt to belatedly introduce by way of post-trial briefing additional evidence relating to its alleged relationship with MPR.

to put it in the compression region as far as away from the neutral axis as you can so you get the motion you need to pinch that tube closed.” (*Id.* at 1881–82.)

39. The term “bending region” has been a point of disagreement in this case. Although Hrabal never used this term, Coda insists that the “optimal location” for the peristaltic pump that Hrabal identified to Goodyear is “in the bending region,” but, based upon the testimony of Hrabal and others, the Court finds Coda’s position unconvincing.

40. Notably, and importantly, Hrabal offered no testimony that convinced this Court that he was the inventor of any of the claims of the '586 Patent. Nor did he testify that he had conceived of each and every limitation of each and every claim of the '586 Patent, or how or when he supposedly conceived of those features. Although Hrabal baldly testified: “I’m a inventor of the self-inflating tire” (Doc. No. 355, Tr. at 317), he also admitted that others had experimented with (and patented) the use of a peristaltic pump to self-inflate a tire. (*Id.* at 330.) In fact, some such experimentation occurred before 2009. (Doc. No. 356, Tr. at 580–81.)

V. CONCLUSIONS OF LAW

A. 35 U.S.C. § 256 (Correction of Named Inventor)

1. Section 256 of Title 35 permits correction of inventorship of a patent, without invalidating the patent, “[w]hen . . . through error an inventor is not named in an issued patent[.]” Where, as here, that determination is requested of a district court by way of a lawsuit, the court “may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.”

2. “Because issued patents are presumed to correctly name their inventors, the burden of proving nonjoinder of inventors is a heavy one, which must be demonstrated by clear and convincing evidence.” *Meng v. Chu*, Nos. 2014-1746, 2015-1390, 2016 WL 1321127, at *4 (Fed.

Cir. Apr. 5, 2016) (quotation marks and citation omitted); *see also Hess v. Adv. Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997) (“[O]ne claiming that the inventor listed in the patent derived the invention from the claimant’s work must show derivation by clear and convincing evidence[.]” (citing *Amax Fly Ash Corp. v. United States*, 514 F.2d 1041, 1047 (Ct. Cl. 1975))).

B. Law of Inventorship

3. Conception is “the touchstone of inventorship.” *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994). “The definition of conception in patent law has remained essentially unchanged for more than a century. It is the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice. At that point, all that remains to be accomplished, in order to perfect the art or instrument, belongs to the department of construction, not creation.” *Dawson v. Dawson*, 710 F.3d 1347, 1352 (Fed. Cir. 2013) (internal quotation marks and citations omitted); *see also Sewall v. Walters*, 21 F.3d 411, 415 (Fed. Cir. 1994) (“Conception is complete when one of ordinary skill in the art could construct the [claimed] apparatus without unduly extensive research or experimentation.”).

4. “Conception, and consequently inventorship, are questions of law[.]” *Sewall*, 21 F.3d at 415.

5. Since the application for what is now the '586 Patent was filed on December 21, 2009 (Ex. P-8, at 1), to prevail on its claim that Hrabal was the '586 Patent’s sole inventor,¹¹ Coda

¹¹ As already noted, Coda has abandoned any claim that Hrabal was the co-inventor of the '586 Patent. Had it not done so, Coda would have had to establish that Hrabal “contribute[d] in some significant manner to the conception of the invention.” *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (citations omitted). As such, “each inventor must contribute to the joint arrival at a definite and permanent idea of the invention as it will be used in practice.” *Burroughs Wellcome Co.*, 40 F.3d at 1229. “Inventors may apply for a patent jointly even though . . . each did not make a contribution to the subject matter of every claim of the patent.” 35 U.S.C. § 116. But, “[a] contribution

must show that, by December 21, 2009, Hrabal conceived a “definite and permanent” idea of the complete and operative inventions claimed in the '586 Patent, including “every feature or limitation of the claimed invention.” *REG Synthetic Fuels, LLC v. Neste Oil Oyj*, 841 F.3d 954, 962 (Fed. Cir. 2016) (citation omitted). “An idea is definite and permanent when the inventor has a specific, settled idea, a particular solution to the problem at hand, not just a general goal or research plan he hopes to pursue.” *Burroughs Wellcome Co.*, 40 F.3d at 1228.

6. Any testimony in support of a claim of inventorship must be corroborated; the putative inventor’s oral testimony alone will not suffice. *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 (Fed. Cir. 2004). “What is required is ‘corroborating evidence of a contemporaneous disclosure that would enable one skilled in the art to make the invention.’” *Thompson v. Haynes*, 305 F.3d 1369, 1384 (Fed. Cir. 2002) (quoting *Burroughs Wellcome*, 40 F.3d at 1228)); *see also Spansion, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1356 (Fed. Cir. 2010) (“Because it is a mental act, an inventor’s oral testimony regarding conception must be corroborated by evidence which shows that the inventor disclosed to others his completed thought expressed in such clear terms as to enable those skilled in the art to make the invention.” (quotation marks and citations omitted)).

7. Evidence from a non-testifying third party cannot corroborate a putative inventor’s testimonial assertions. *Shu-Hui Chen v. Bouchard*, 347 F.3d 1299, 1309–10 (Fed. Cir. 2003); *see also id.* at 1308 (finding third-party notebooks could not corroborate inventorship of plaintiff because of “the failure of the notebooks’ alleged author [one Jianmei Wei] to testify; the fact that it was not established on the record that those notebooks were actually the notebooks of Wei,

of information in the prior art cannot give rise to joint inventorship because it is not a contribution to conception.” *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1362 (Fed. Cir. 2004).

except by the circular testimony of [plaintiff], whose activity was what was intended to be corroborated by the notebooks”).

8. “That rule [of corroboration] addresses the concern that a party claiming inventorship might be tempted to describe his actions in an unjustifiably self-serving manner” *Singh v. Brake*, 317 F.3d 1334, 1341 (Fed. Cir. 2003).

9. “[Corroboration] is evaluated under a rule of reason analysis, which requires that an evaluation of *all* pertinent evidence must be made so that a sound determination of the credibility of the inventor’s story may be reached.” *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1327 (Fed. Cir. 2004) (internal citations and quotation marks omitted) (emphasis in original).

Corroborating evidence may take many forms. Reliable evidence of corroboration preferably comes in the form of records made contemporaneously with the inventive process. Circumstantial evidence of an independent nature may also corroborate. Additionally, oral testimony from someone other than the alleged inventor may corroborate.

Id. (internal citations omitted).

10. “[A]n inventor’s conception can be corroborated even though no one piece of evidence in and of itself establishes that fact and even through circumstantial evidence.” *NFC Tech., LLC v. Matal*, 871 F.3d 1367, 1372 (Fed Cir. 2007) (internal quotation marks and citations omitted); *see also E.I. du Pont De Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1077 (Fed. Cir. 2019) (“[O]ur case law does not require that evidence have a source independent of the inventors on every aspect of conception and reduction to practice; such a standard is the antithesis of the rule of reason.” (quotation marks and citations omitted)); *Fleming v. Escort Inc.*, 774 F.3d 1371, 1377 (Fed. Cir. 2014) (“[Defendant] is correct that none of the corroborating evidence

constitutes definitive proof of [plaintiff's] account or discloses each claim limitation as written. But the corroboration requirement has never been so demanding.”).

C. Law of Claim Construction

11. “[A]n inventorship analysis, like an infringement or invalidity analysis, begins as a first step with a construction of each asserted claim to determine the subject matter encompassed thereby.” *Trovan, Ltd. v. Sokymat SA*, 299 F.3d 1292, 1302 (Fed. Cir. 2002); *see also Egenera, Inc. v. Cisco Sys., Inc.*, 972 F.3d 1367, 1376 (Fed. Cir. 2020) (“[I]nventorship is a legal conclusion premised on underlying factual findings, and one that depends on claim construction.” (citing among authority *Trovan*, 299 F.3d at 1302)).

12. The first step of claim construction is to review “the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention.” *Vitronics Corp. v. Conceptronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). As a second step, “it is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning.” *Id.*

13. Claim construction begins with the principle that the language of the claims, which is “highly instructive” and entitled to significant weight, should generally be given its ordinary and customary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc). Generally, claim terms are given “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application.” *Id.* at 1313. This “ordinary and customary meaning” is a meaning in context: “not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1312–13; *see also Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1320 (Fed. Cir. 2016). Where claim

terms do not have a particular meaning in the relevant field of art, claim construction requires “little more than application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314.

14. While courts may deviate from the ordinary and customary meaning in some circumstances, there is a “heavy presumption that a claim term carries its ordinary and customary meaning.” *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). The standard for deviating from that meaning is “exacting” and requires “a clear and unmistakable disclaimer.” *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1366–67 (Fed. Cir. 2012); *see also Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009) (requiring “expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope” to deviate from the ordinary and customary meaning).

15. The other exception to applying the ordinary and customary meaning to the claim terms is where a patentee acts as its own lexicographer. *Thorner*, 669 F.3d at 1365 (citing *Vitronics Corp.*, 90 F.3d at 1580). “To act as its own lexicographer, a patentee must ‘clearly set forth a definition of the disputed claim term’ other than its plain and ordinary meaning.” *Id.* (quoting *CCS Fitness*, 288 F.3d at 1366).

16. “*Markman* [*v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996)] does not require a district court to follow any particular procedure in conducting claim construction. It merely holds that claim construction is the province of the court, not a jury. To perform that task, some courts have found it useful to hold hearings and issue orders comprehensively construing the claims in issue. Such a procedure is not always necessary, however.” *Ballard Med. Prods. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1358 (Fed. Cir. 2001) (an infringement case where the plaintiff/appellant claimed the district court

erred by “fail[ing] to conduct a detailed, limitation-by-limitation construction of each of the asserted claims”).

17. “[I]nventorship is a claim-by-claim question.” *Egenera, Inc.*, 972 F.3d at 1372. But “[i]f the district court considers one issue to be dispositive, the court may cut to the heart of the matter and need not exhaustively discuss all the other issues presented by the parties. District courts have wide latitude in how they conduct the proceedings before them, and there is nothing unique about claim construction that requires the court to proceed according to any particular protocol” *Ballard*, 268 F.3d at 1358. “As long as the trial court construes the claims to the extent necessary to determine [the relevant issues], the court may approach the task in any way that it deems best.” *Id.*

18. A court need not construe every claim term; it need only construe terms that are disputed and whose construction impacts the ultimate determination. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997).

19. The '586 Patent itself defines specific terms and this Court is bound by those definitions to the extent they affect the ultimate determination. Where the '586 Patent is silent as to the meaning of terms, this Court accords such terms their ordinary and customary meaning.

E. Inventorship of the '586 Patent

20. “The invention [of the '586 Patent] relates generally to self-inflating tires and more specifically, to a tire assembly incorporating a pump mechanism.” (Ex. P-8, the '586 Patent, at 1: 5–7 [P-0008_0015].)

21. Benedict and Losey are presumed to be the true and correct inventors of the '586 Patent. *Caterpillar v. Sturman Indus., Inc.*, 387 F.3d 1358, 1377 (Fed. Cir. 2004) (“Patent issuance creates a presumption that the named inventors are the true and only inventors.”).

22. Where, as here, a plaintiff seeks to be declared the *sole* inventor of a patent on the basis of conception, the plaintiff is required to “‘show possession of every feature recited in the c[laims], and that every limitation of the c[laims] must have been known to the inventor at the time of the alleged conception.’” *James v. J2 Cloud Servs., LLC*, 823 F. App’x 945, 949 (Fed. Cir. 2020) (quoting *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985)).

23. The '586 Patent has two independent claims (Claim 1 and Claim 18) and seventeen dependent claims. As already noted, Coda has abandoned any claim of co-inventorship relating to the '586 Patent. Therefore, if Coda is unable to establish conception by Hrabal of every limitation in either or both of the independent claims, the Court need proceed no further because that fact would already preclude Hrabal from claiming sole inventorship of the '586 Patent.

24. As noted above, Claim 1 of the '586 Patent states as follows:

1. A self-inflating tire assembly comprising:
 - a rim having a tire mounting surface extending between first and second rim flanges;
 - a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;
 - the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;
 - a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall;
 - an air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

(Ex. P-8 at 10: 29–54 [P-0008_0019] (emphasis added).)

25. As noted above, Claim 18 states as follows:

18. A self-inflating tire assembly comprising:
a rim having a tire mounting surface extending between first and second rim flanges;
a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;
the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;
a sidewall groove extending into an outward facing side of the sidewall and positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall, the sidewall groove being at least partially open to the outward facing side of the sidewall;
an enclosed air conducting air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube between the opposite groove surfaces from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

(*Id.* at 12: 7–35 [P-0008_0020] (emphasis added).)

26. Although the applicant for the '586 Patent attempted to act as a lexicographer, only two of the patent's twenty (20) defined terms ("footprint" and "groove") are found in Claim 1 and/or Claim 18.

27. The '586 Patent's definition of the term "groove" is not relevant to either Claim 1 or Claim 18 because the definition is directed solely to "an elongated void area *in a tread*" (*id.* at 2:24 [P-0008_0015] (emphasis added)), whereas both Claim 1 and Claim 18 refer to only "a *sidewall* groove." Therefore, the Court will accord this term in Claim 1 and Claim 18 its ordinary and customary meaning.

28. The '586 Patent defines the term “footprint” to mean “the contact patch or area of contact of the tire tread with a flat surface at zero speed and under normal load and pressure.” (*Id.* at 2:31–33 [P-0008_0015].) This patent definition of “footprint” is little more than a statement of the plain and ordinary meaning of “footprint” to a person having ordinary skill in the art of *tire* manufacturing. Such a person would understand “footprint” to mean the tire tread’s area of contact with a flat surface. That is the meaning afforded by the Court.

29. The term “bending region” appears in both Claim 1 and Claim 18 but is not specifically defined in the patent. Therefore, the Court will give it an ordinary and customary meaning, informed by the Detailed Description of the Patent.

30. The “bending region” is claimed as part of the tire sidewall “having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone” (Ex. P-8, at 10:39–42; *see also id.* FIG-9A.)

31. The '586 Patent claims the location of the groove as “positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall.” (*Id.* at 10:43–45; *see also id.* at 9:26–32 (referencing FIG-9A and explaining that “[f]or placement of the groove and air tube, a bending region of the sidewall is selected that will experience bending strain when that region is adjacent to the tire footprint. The compression side **182** of the region **174** is satisfactory for placement of the groove and tube assembly **188** since a compression of the side **182** of the region **174** will cause the groove to close around the air tube.”).)

32. As already noted, Hrabal never specifically used the term “bending region,” but (unconvincingly) insists that his *concept* of “placing a pump . . . in the sidewall close to, and above, the rim *where the tire cyclically deforms in response to deformation*[,] (Doc. No. 223-20, at 27 (TS 24)) expresses the “bending region” concept.

33. But Benedict, who is a tire engineer, coherently and convincingly testified that the novel feature of the '586 Patent—a feature that the Court finds Hrabal did not conceive of (or even understand)—was “[a] tube closed by a compression of bending.” (Doc. No. 357, Tr. at 857.) He further testified that “bending is the key” and “cyclic deformations” are not necessarily the same as “bending.” (*Id.*) This is because “cyclic deformations of a lower sidewall could be normal. They don’t have to be bending.” (*Id.*)

34. Robert Losey, the co-inventor with Benedict of the '586 Patent (and who never attended any meeting with Coda or Hrabal, who learned about the meetings long after applying for the patent, and who never discussed the meetings with Benedict (Doc. No. 357, Tr. at 934–35)) corroborated Benedict’s testimony stating that, from “[his] knowledge of tire mechanics, [he] had a general idea for a location[,]” (*id.* at 937), and they then “found the location in the tire where it was far away from the neutral bending axis so that there was a lot of compressive forces that could pinch a tube[.] . . . [without] destroy[ing] the tube or damag[ing] the tube. And it was—it’s a tube in a groove *in that specific location.*” (*Id.* (emphasis added).)

35. Benedict also distinguished Hrabal’s explanation of his (Hrabal’s) “scissor effect,” that is, getting the most compression by placing the groove close to the neutral point (*i.e.*, the fulcrum of the scissors) from what the '586 Patent requires and claims, that is, positioning the groove “furthest away from the neutral axis [to] get[] the most compression.” (Doc. No. 361, Tr. at 1881–82.)

36. Although both Hrabal and the '586 Patent would locate the pump assembly in a groove in the tire sidewall, it is the *optimal* location within the sidewall that is key, not just the *general* fact of locating the groove in the sidewall. The Court concludes that Hrabal’s optimal

location, to the extent it can even be discerned and/or corroborated on this record,¹² is not the same as the optimal location claimed in the '586 Patent, which requires the groove to be within the compression side of the neutral axis of a bending region.

37. The '586 Patent discloses many other features but, because a putative inventor like Hrabal (Coda) seeking to be substituted as the *sole* inventor (and having abandoned any co-inventorship claim) must establish *every* limitation of *every* claim of the patent, the Court, as already noted, may properly focus on one limitation which, if not shown to have been conceived by Hrabal, precludes recovery on any claim of sole inventorship. *See, e.g., Ballard*, 268 F.3d at 1358 (finding that if one issue is dispositive, a district court need not discuss all the other issues).

38. As already noted, the '586 Patent discloses, *inter alia*, “a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall[.]” Benedict explained that “if you’re looking to pinch a tube by closing the slot, you want to put it in the compression region as far as away from the neutral axis as you can so you get the motion you need to pinch that tube closed.” (Doc. No. 361, Tr. at 1881–82.)

39. Although Hrabal claims that he orally disclosed this very invention to Goodyear in 2009, prior to the issuance of the '586 Patent, there is no independent evidence to support that assertion. In fact, Hrabal’s description of what he disclosed to Goodyear during two meetings in January and June of 2009 has been vague, evasive, and at times incomprehensible, demonstrating a lack of understanding of key concepts in the '586 Patent.

¹² To attempt to corroborate its assertion that Hrabal was first to conceive of the relevant “optimal location,” Coda relies heavily on the belatedly presented MPR exhibits that have been rejected by the Court. But even if those documents were considered, they do not offer proof that Hrabal’s alleged “optimal location” was the same as the optimal location in the '586 Patent as explained by Benedict. Nor does Hrabal’s own testimony offer any clarity. Hrabal testified that, although his “optimal location” was not visible on his prototype, which employed epoxy extensions to simulate a tube-in-groove, it was “behind the extension . . . in the tire sidewall inside.” (Doc. No. 355, Tr. at 333–34.) This is simply not specific enough to prove anything.

40. In any event, Hrabal’s testimony at trial regarding his invention that he claims to have disclosed to Goodyear relies upon a “scissor effect” that would require any compression or pinching to occur *closest* to the pivot point or axis of the “scissors.” As noted by Benedict in his testimony, this is the opposite of what the '586 Patent discloses in the one limitation in both Claim 1 and Claim 18 that the Court has focused on for purposes of this analysis.¹³ Again, Hrabal’s assertion that his “scissor effect” mechanism is claimed in the '586 Patent reflects Hrabal’s misunderstanding of that patent and is simply incorrect.

41. To be even more specific, Coda claimed that one of its trade secrets related to “the optimal location for placement of a pump in a tire for tire manufacturers, namely, *in the sidewall close to, and above, the rim* where the tire cyclically deforms in response to deformation.” (See Doc. No. 223-20, at 27.) Coda claims here that this is part of what it disclosed to Goodyear, which Goodyear then patented in the '586 Patent. But, as explained previously, this fails to describe the invention described in the '586 Patent. Benedict’s testimony clarifies that Hrabal’s “scissor effect” idea of getting as close as possible to the axis is the opposite of what the '586 Patent discloses. (See Doc. No. 361, at 1882 (“You want to be as far out as you can. You don’t want to be in at the pivot point.”).)

42. In light of Coda’s failure to establish that Hrabal conceived of one of the salient features (if not *the* salient feature) of the invention disclosed in the '586 Patent—much less that he was *first* to conceive it—there is no basis upon which to find in Coda’s favor on the claim for

¹³ Claim 17 throws additional light on this limitation. It claims “[t]he tire assembly of claim 1, wherein the sidewall groove is positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall *at a substantially maximum distance from the neutral axis.*” (Ex. P-8, U.S. Patent No. 8,042,586 (emphasis added).) Although Claim 17 is a dependent claim from Claim 1 (and the Court has determined no need to focus on the dependent claims), its additional limitation exactly corroborates what Benedict credibly emphasized as the important feature of this limitation in the '586 Patent, namely, that the compression region needs to be *as far away* from the neutral axis as possible, not as Coda claims, that the compression region needs to occur *closest* to the neutral axis.

correction of inventorship in Count One of the first amended complaint and the Court need not separately examine any other parts of the relevant patent.

43. The Court also specifically rejects Coda's argument that Goodyear is merely improperly requiring Coda or Hrabal to use certain exact phrases to describe the optimal location (*i.e.*, "compression side of the neutral axis" and/or "bending region"). (*See* Doc. No. 384, at 15–16.) Coda's problem is not the failure to use any particular phrase(s). The fatal problem is Coda's failure to prove that in the 2009 meetings Hrabal disclosed to Goodyear an actual "optimal location" that he alone had discovered before anyone else, much less *where* such location might have been in a tire.

44. Coda also seeks an order of equitable assignment of ownership of the '586 Patent both because "[t]he jury verdict makes plain that the '586 [P]atent was obtained using Coda's misappropriated trade secret information[,]" (Doc. No. 378, at 9), and "given that it was obtained as a direct result of the seed Mr. Hrabal planted within Goodyear in the 2009 meetings and Goodyear's subsequent willful and malicious misappropriation." (Doc. No. 384, at 7.) The Court has separately set aside the jury's verdict of misappropriation and there is no evidence that Hrabal was responsible for planting any "seed" within Goodyear, since Goodyear was already engaged in research on its own self-inflating tire technology (albeit unsuccessfully) when Hrabal made his alleged disclosures.

45. In summary, Coda has failed to prove by clear and convincing evidence that, before December 21, 2009, Hrabal conceived a definite and permanent idea of the complete and operative inventions claimed in the '586 Patent, including every feature or limitation of the claimed inventions.

VI. ORDER

From the outset of this case, Coda's alleged trade secrets and patent conceptions have been ill-defined moving targets. Hrabal's evasive testimony at trial only further evinced that he did not fully understand the concepts and mechanics for which he claimed trade secret misappropriation, particularly as it pertained to the optimal location and bending region concepts of the invention. This is most evident when Hrabal included in his "optimal location" a "scissor effect" concept that was the opposite of the concept described in the '586 Patent.

For the reasons set forth herein, the Court finds in favor of defendants Goodyear and Benedict on Coda's claim for correction of inventorship as to the '586 Patent and that claim (Count One) is dismissed, as is the claim for joint inventorship as to the '254 Patent (Count Two) that Coda abandoned. All requests for injunctive and/or declaratory relief (Count Five) are also dismissed.

IT IS SO ORDERED.

Dated: March 31, 2023

Suz Ljoi
HONORABLE SARA LJOI
UNITED STATES DISTRICT JUDGE

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

CODA DEVELOPMENT s.r.o. CODA
INNOVATIONS s.r.o., et al.,

Plaintiffs,

vs.

THE GOODYEAR TIRE & RUBBER
COMPANY, et al.,

Defendants.

Case No. 5:15CV1572
Akron, Ohio
Friday, September 16, 2022
8:45 a.m.

TRANSCRIPT OF TRIAL
VOLUME 10, PAGES 2654 THROUGH 2789
BEFORE THE HONORABLE SARA LIOI
UNITED STATES DISTRICT JUDGE

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Proceedings recorded by mechanical stenography; transcript
produced by computer-aided transcription.

1 MS. QUADRINO: Thank you, Your Honor.

2 Just two points. We note that the Court has included
3 an instruction on the duty of confidentiality, which is
4 largely derived from the nondisclosure agreement present in
08:51:44 5 this case.

6 Coda goes not object to this instruction. We just
7 wish to note for the record that this is an issue on which
8 defendants have filed a motion for summary judgment. There
9 were legal arguments presented to the Court based on the
08:51:56 10 terms of that nondisclosure agreement, and by our agreeing
11 to including an instruction on this in the jury
12 instructions, we are not waiving the legal positions that we
13 took previously.

14 THE COURT: Very well.

08:52:06 15 MS. QUADRINO: Secondly, based on our prior
16 discussions, we understand that Your Honor is likely not to
17 include an instruction on reasonable royalty damages.

18 Coda objects to the exclusion of an instruction on an
19 alternative form of damages based on a reasonable royalty.
08:52:21 20 Pursuant to the Ohio Uniform Trade Secrets Act, that
21 provides in lieu of damages, measured by any other methods,
22 the damages caused by misappropriation may be measured by
23 imposition of liability for a reasonable royalty that is
24 equitable under the circumstances, considering the loss to
08:52:38 25 the complainant, the benefit to the misappropriator or both

1 for the misappropriator's unauthorized disclosure or use of
2 a trade secret. That's Revised Code 1333.63.

3 Coda is entitled to present alternative theories of
4 damages to the jury. This Court confirms plaintiff's
08:52:57 5 ability to present this theory of damages in its ruling
6 denying defendant's motion in limine seeking to exclude Coda
7 from presenting alternative theory of damages to the jury
8 and specifically finding that, quote, "Shirley Webster's
9 expert report satisfies the notice requirement with respect
08:53:11 10 to a damages theory based on reasonable royalties, no matter
11 that she may have characterized those as actual losses."
12 That's the hearing transcript from August 17, page 10, line
13 14 to 17.

14 Ample evidence has been presented to the jury in the
08:53:25 15 form of documents and fact and expert witness testimony to
16 enable the jury to calculate reasonable royalty damages.
17 And we object to excluding that instruction at this time.

18 THE COURT: Thank you, Ms. Quadrino.

19 And those are the only two objections then?

08:53:43 20 MS. QUADRINO: Yes.

21 THE COURT: Mr. Castanias.

22 MR. CASTANIAS: Thank you, Your Honor. Yes.

23 The Goodyear defendants object to giving the damages
24 question to the jury, the punitive damages question to the
08:54:00 25 jury. Pardon me.

1 Ohio Revised Code 1333.63(B) says, "The Court shall
2 award punitive damages up to treble and actual damages."
3 And the framers of the Uniform Trade Secrets Act, which was
4 adopted by Ohio, explicitly said it in their notes to this
08:54:21 5 draft that this was to be the allocation of responsibilities
6 between Judge and jury, and this is to be the same
7 allocation responsibilities as under 35, United States Code,
8 Section 284, the Patent Acts Enhanced Damages Provision.

9 I think that's adequate to set forth the grounds for
08:54:36 10 our objection. And the way that our -- the instruction
11 and --

12 THE COURT: On alternative damages.

13 MR. CASTANIAS: -- jury form would read, so I'm
14 not going to belabor the point.

08:54:49 15 THE COURT: Very well. And I just want to
16 indicate relative to that decision by the Court, since I now
17 think the exchange is complete on that one, is that I was
18 persuaded by 2004 Southern District Ohio decision, Newark
19 versus Sauter, and until the Federal Circuit, the Supreme
08:55:17 20 Court would indicate otherwise, I'm going to follow that
21 law.

22 All right. Your next point.

23 MR. CASTANIAS: That's all from the Goodyear
24 defendants.

08:55:25 25 THE COURT: Okay. So just stay in place both of

1 you.

2 Relative to the damage alternative of reasonable
3 royalty, I would indicated that Ms. Webster prepared a very
4 extensive report. In that report, to be sure, she insisted
08:55:53 5 that it was a reasonable -- I'm sorry, that her damage
6 calculation was based upon actual loss.

7 I heard the parties' arguments during the motion in
8 limine, questioned whether it was actual loss, even wrote my
9 opinion in that fashion.

08:56:16 10 When I heard the entirety of the evidence, it was just
11 reaffirmed in my mind that truly the plaintiffs, being the
12 master of their case, and the way they wanted to present
13 their evidence, presented actual loss. It was err for me to
14 say that was that alternative theory. It might have been
08:56:37 15 actual loss that had to do with licensing, but it was an
16 actual loss calculation.

17 The evidence in trial primarily addressed that, and
18 the record is clear as to what it is, so I'm not going to go
19 through all the evidence. We're too close to the time when
08:56:54 20 we need to bring the jurors into the courtroom.

21 But I think it would be inappropriate and there would
22 be no guidance for the jury here as to how should they
23 decide to go with a reasonable royalty calculation, how that
24 would ever be calculated, given the lack of evidence
08:57:21 25 relative to some of that portion of that damage calculation

1 in the Court's estimation.

2 In any event, the plaintiffs, through Ms. Webster's
3 report, made it very clear that they were pursuing an actual
4 damage claim. I'm at this date finally taking them at their
08:57:51 5 word because those how the evidence was presented even at
6 trial.

7 And so that's the basis in summary for the Court's
8 ruling.

9 The two calculations are different. And I think it
08:58:05 10 would be very confusing for the jury to hear -- or to
11 receive a jury instruction that if you think the actual loss
12 calculation, which is based on an ideal, absolutely ideal
13 situation where there would be an exclusive license and lots
14 of sublicenses, and lots of sales of the product, to say
08:58:41 15 that that calculation somehow is insufficient, which is what
16 the standard -- or what the jury instruction would indicate
17 doesn't make any sense based upon the evidence.

18 And I believe based upon Coda's argument that they're
19 one and the same, they're not one and the same.

08:59:17 20 But in any event, that, I think, would be confusing to
21 the jury.

22 So with that, you can add anything you want to the
23 record. I want to go back and finalize jury instructions.

24 Anything further?

08:59:31 25 MS. QUADRINO: No, Your Honor.

(12) **United States Patent**
Losey et al.

(10) **Patent No.:** **US 8,042,586 B2**
 (45) **Date of Patent:** **Oct. 25, 2011**

(54) **SELF-INFLATING TIRE ASSEMBLY**

(75) Inventors: **Robert Allen Losey**, Kent, OH (US);
Robert Leon Benedict, Tallmadge, OH (US)

(73) Assignee: **The Goodyear Tire & Rubber Company**, Akron, OH (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **12/643,243**

(22) Filed: **Dec. 21, 2009**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
B60C 23/12 (2006.01)

(52) **U.S. Cl.** **152/426; 152/415**

(58) **Field of Classification Search** 152/415,
 152/419, 423, 424, 425, 426
 See application file for complete search history.

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Primary Examiner Joe Morano, IV

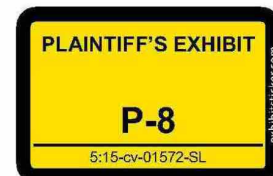
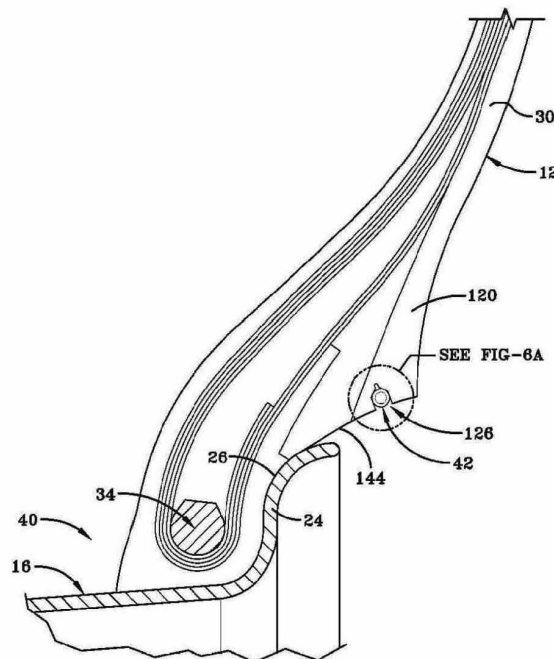
Assistant Examiner — Kip T Kotter

(74) *Attorney, Agent, or Firm* — Richard B. O'Planick

(57) **ABSTRACT**

A self-inflating tire assembly includes an air tube mounted within a tire sidewall groove. The air tube is in contacting engagement with opposite angled groove surfaces surrounding the air tube. A segment of the air tube is flattened from an expanded diameter to a flat diameter by bending and compression of the groove in a rolling tire footprint to force air evacuated from the flattened segment along a tube air passageway. The sidewall groove extends into an annular, axially extending, sidewall surface such as an axially oriented surface of a tire chafer protrusion located in non-contacting relationship with the rim.

19 Claims, 13 Drawing Sheets



GY00025572

P-0008_0001

Appx00071

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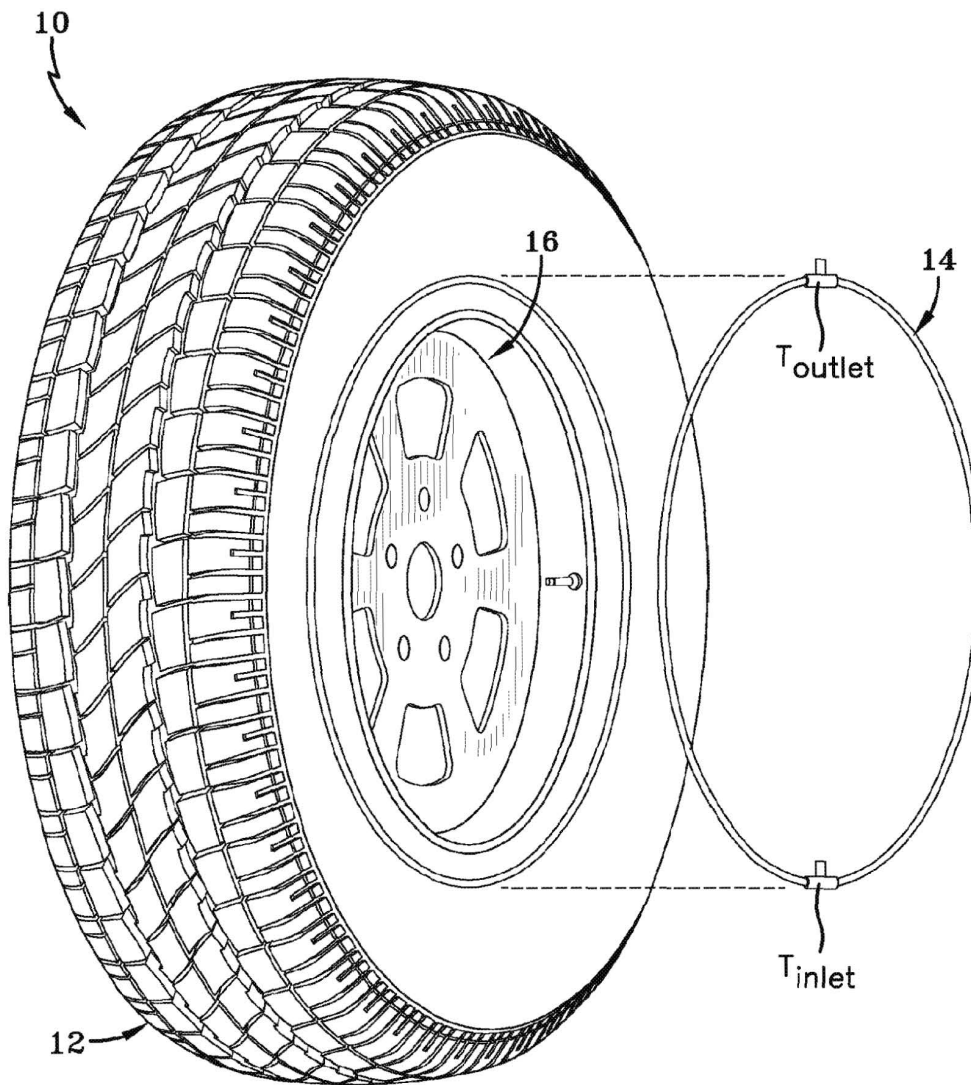


FIG-1

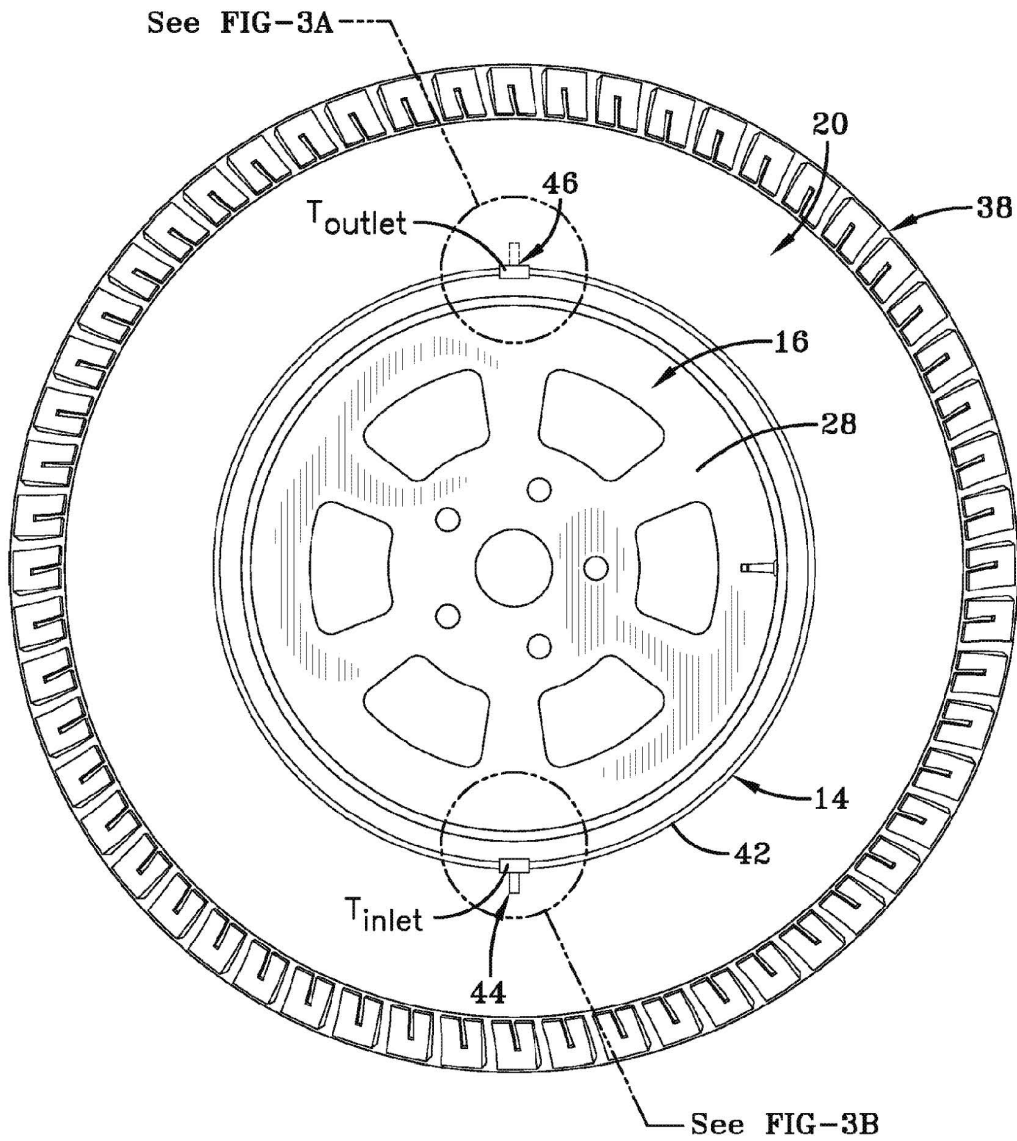
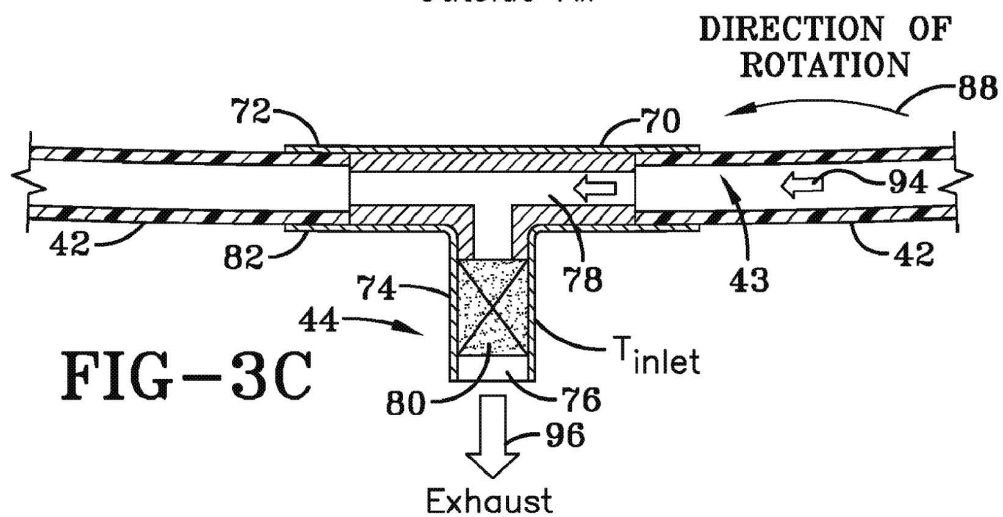
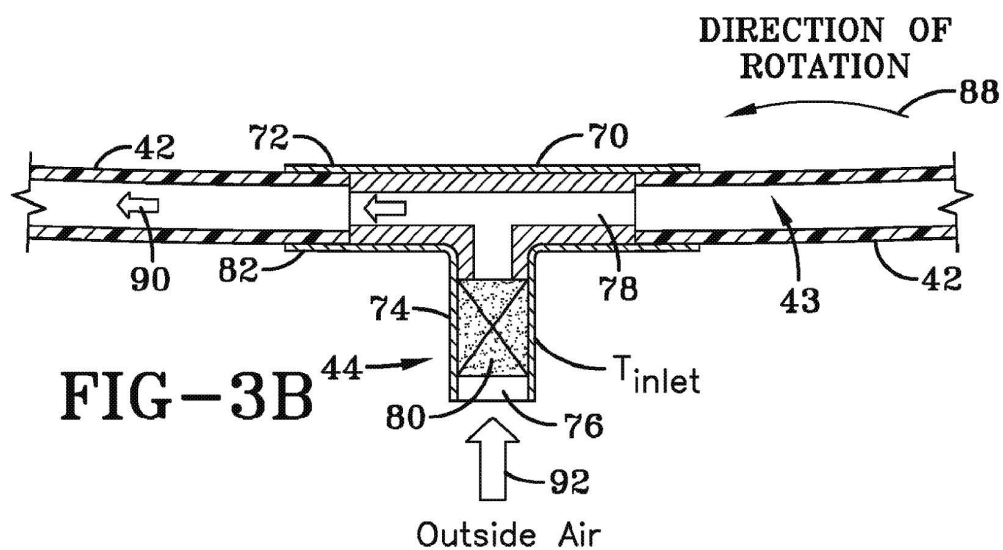
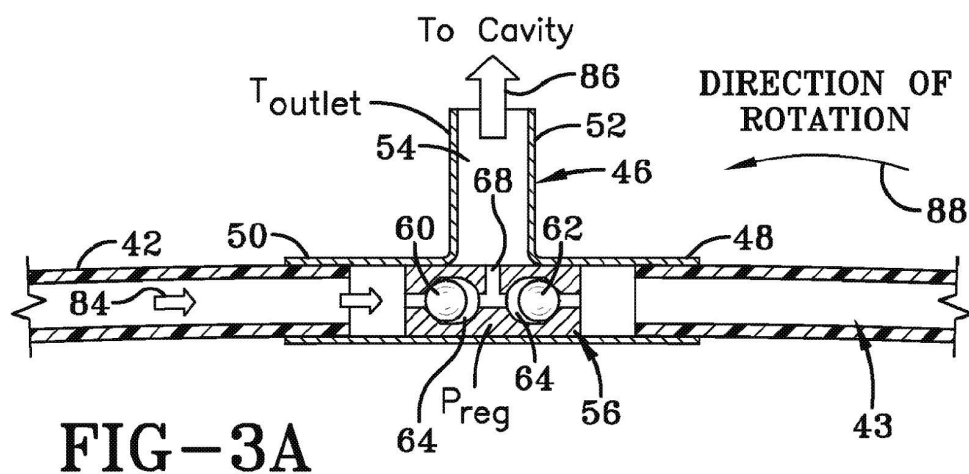


FIG-2



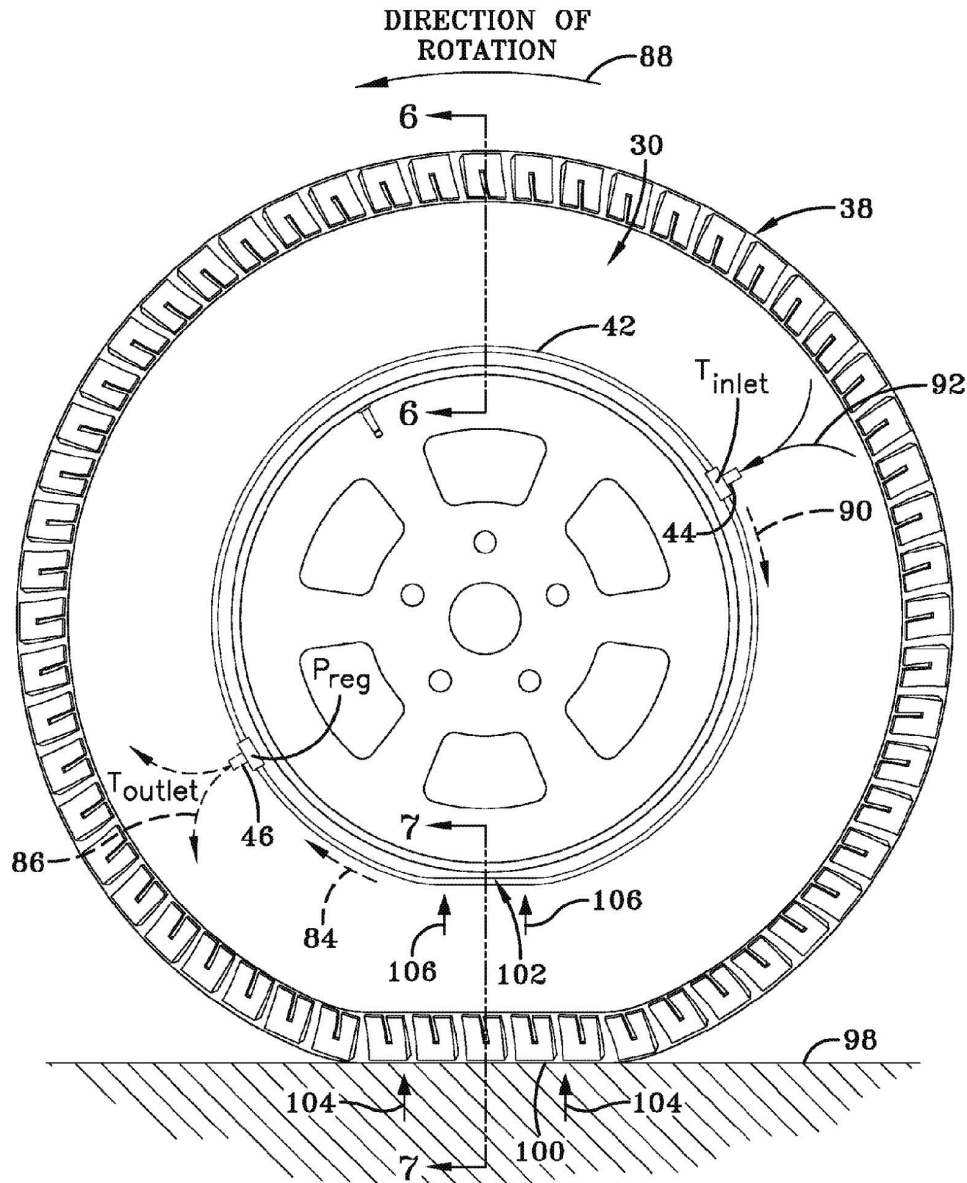


FIG-4A

GY00025576

P-0008_0005

Appx00075

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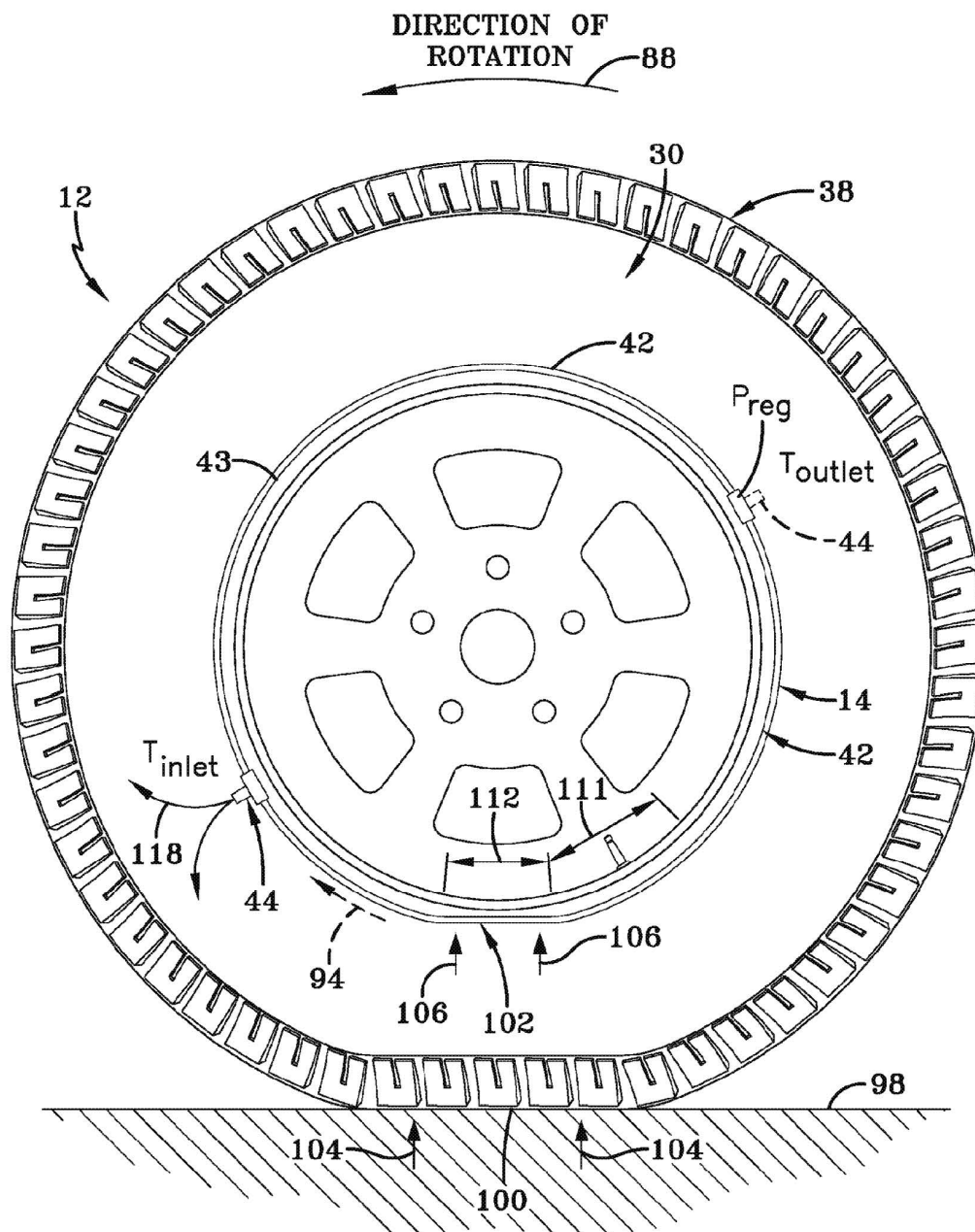


FIG-4B

GY00025577

P-0008_0006

Appx00076

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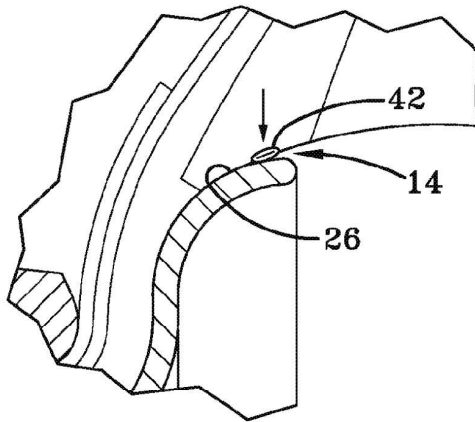


FIG-5A
PRIOR ART

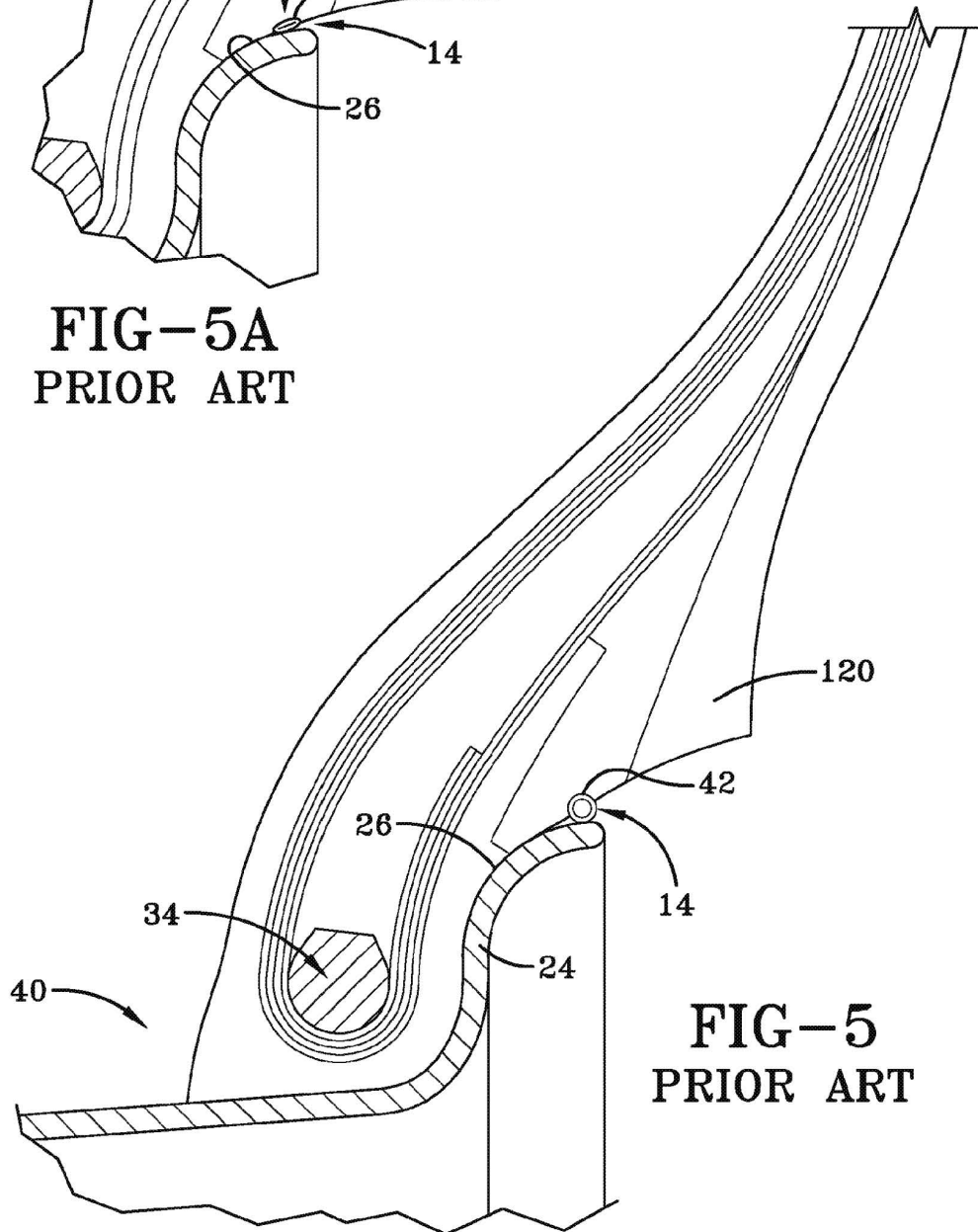
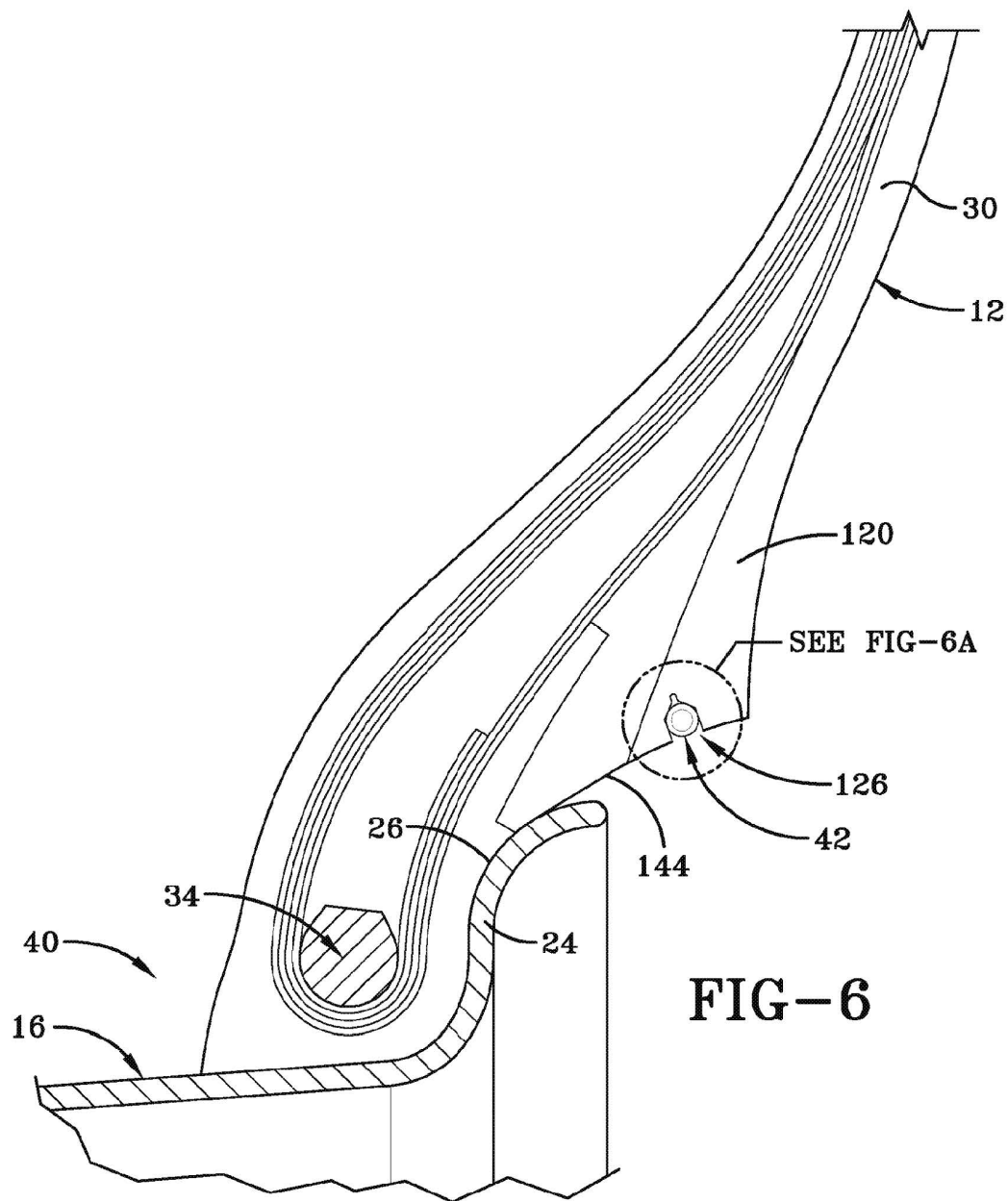


FIG-5
PRIOR ART

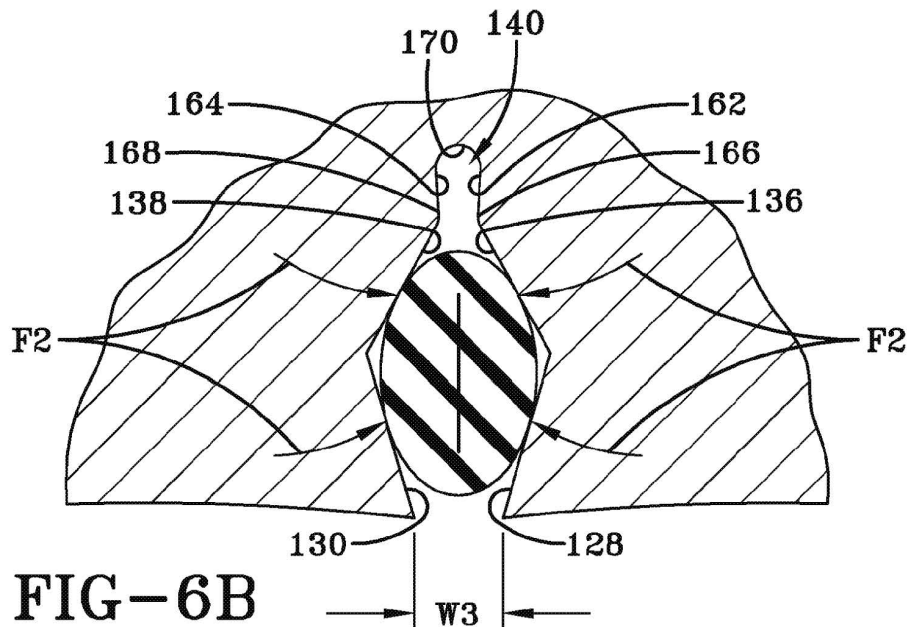
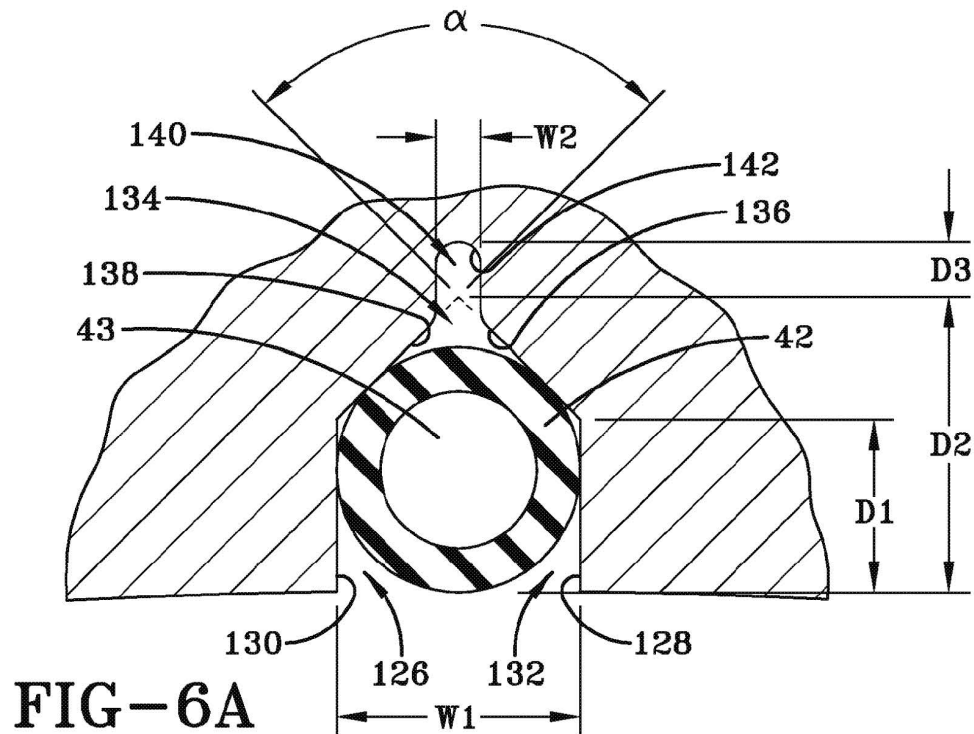


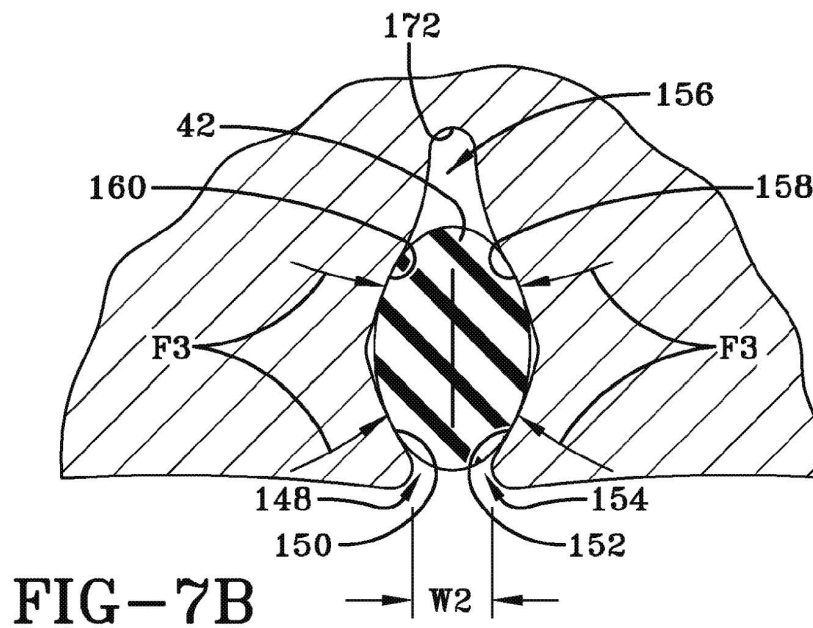
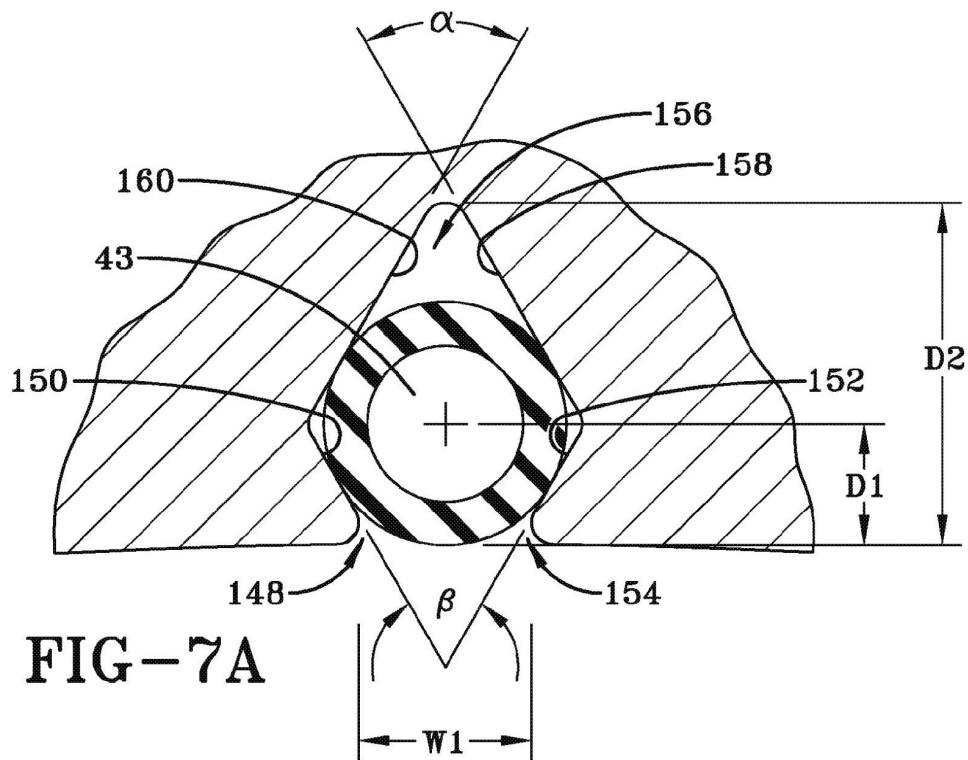
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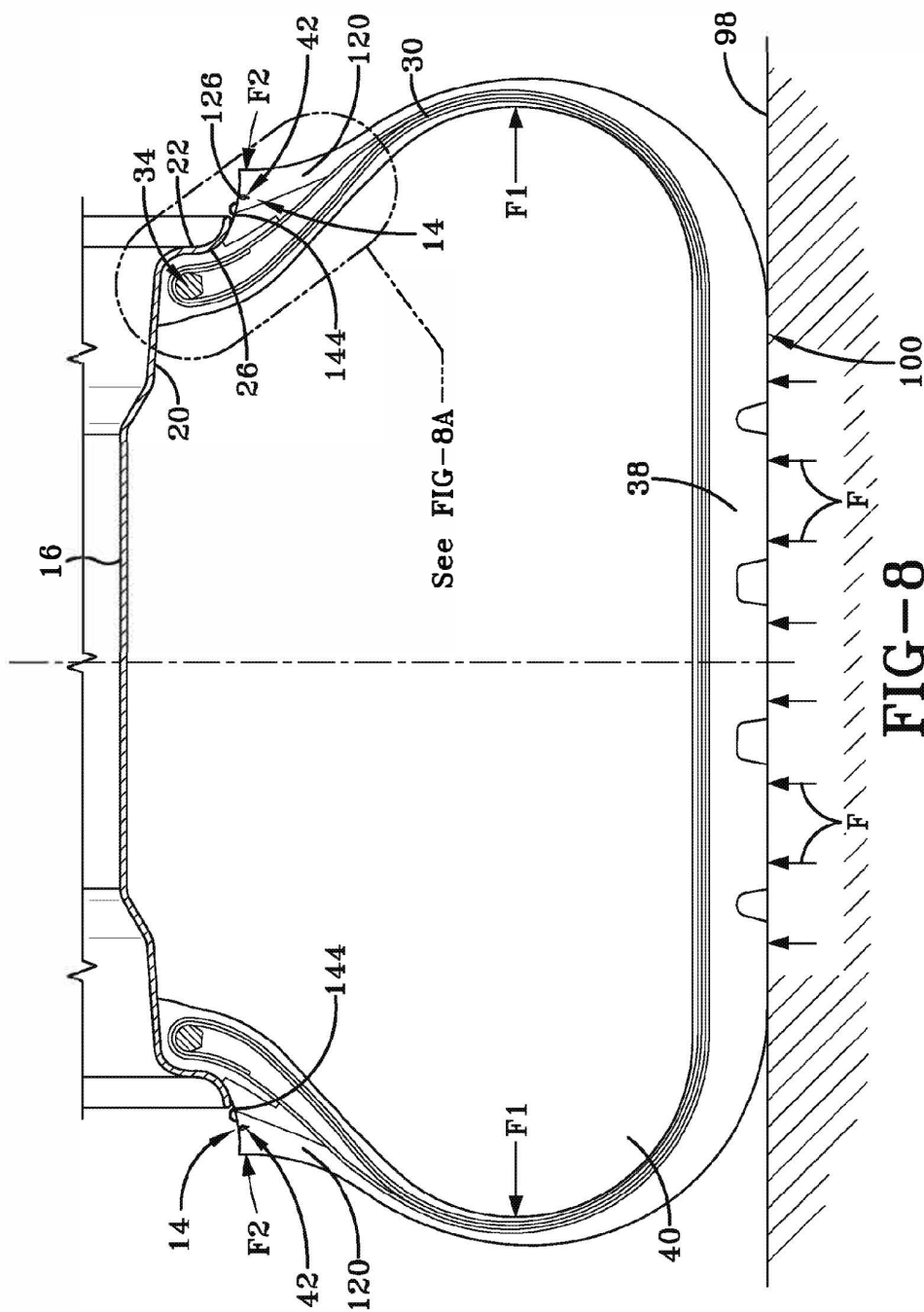


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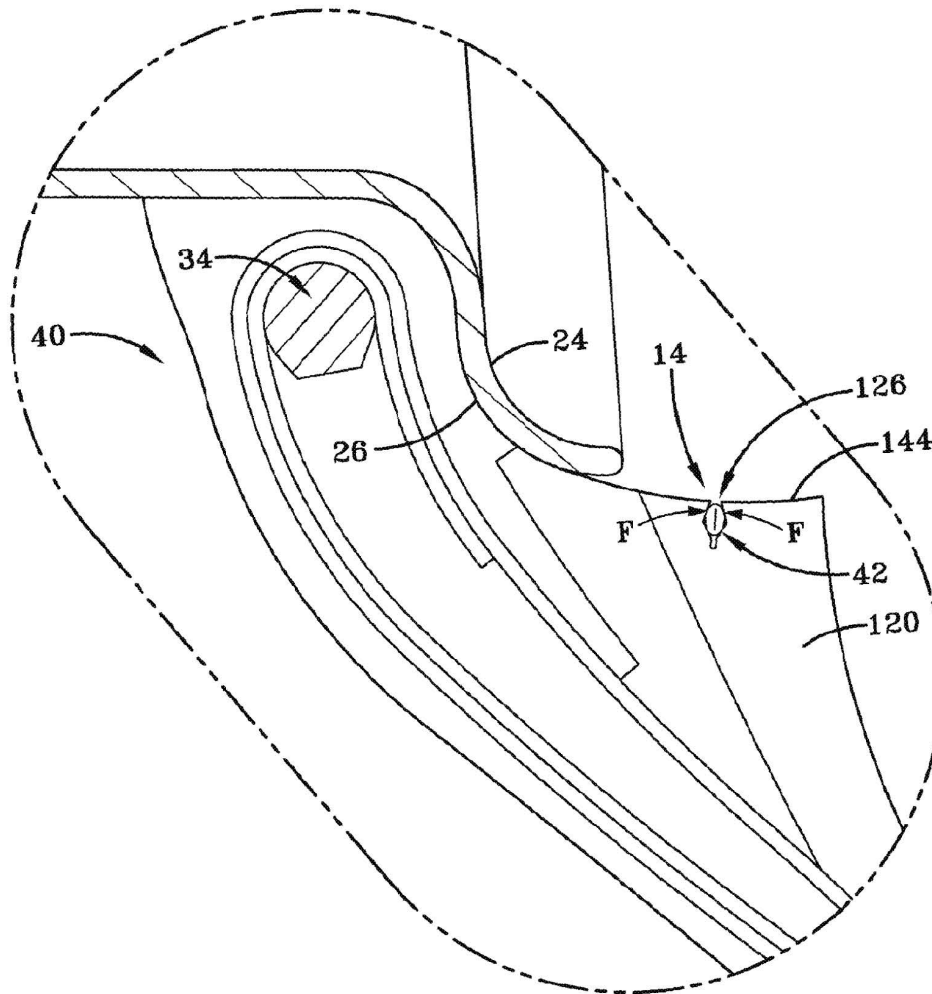


FIG-8A

GY00025583

P-0008_0012

Appx00082

CODA_DIR0000005

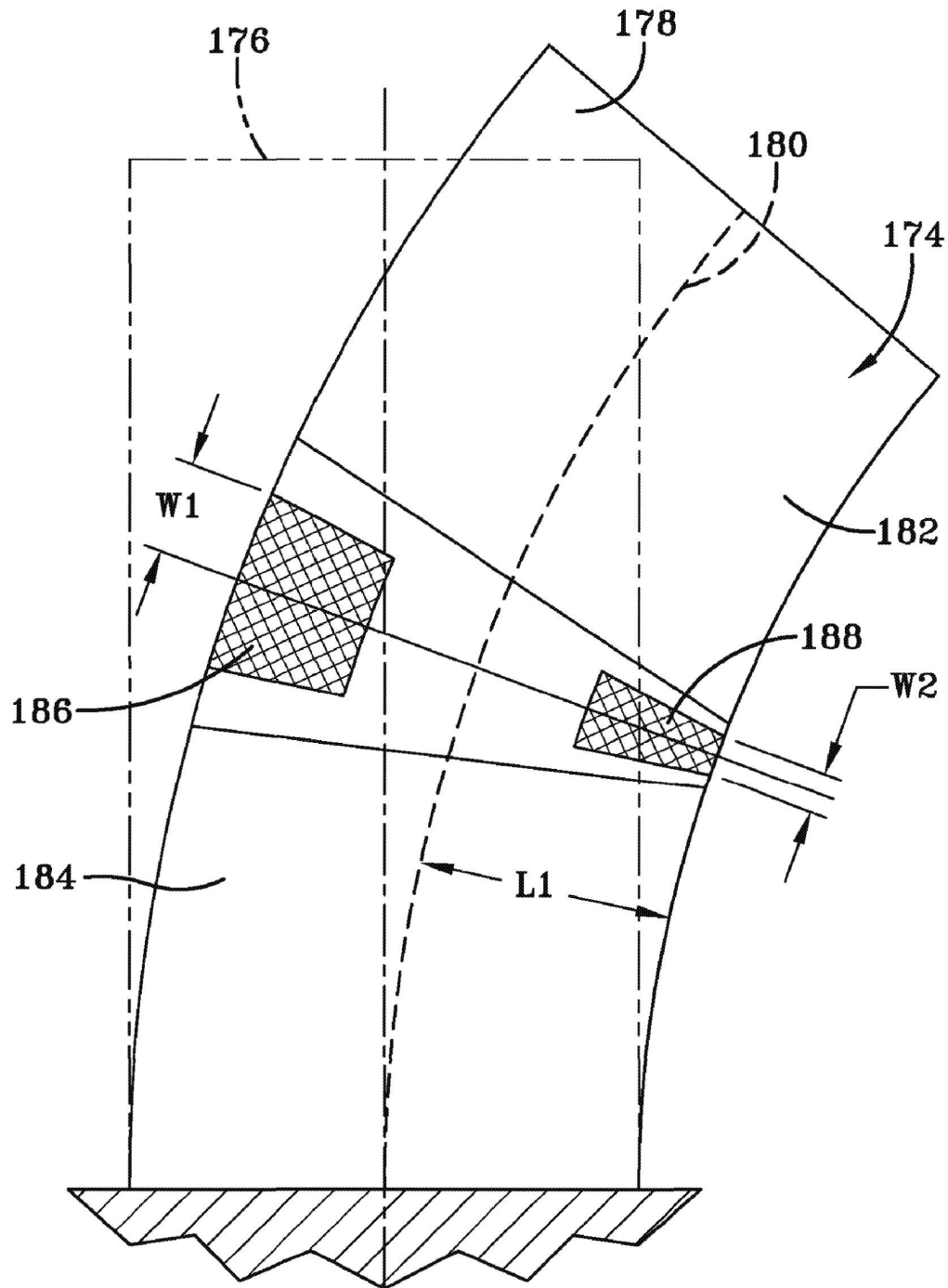


FIG-9A

GY00025584

P-0008_0013

Appx00083

CODA_DIR0000005

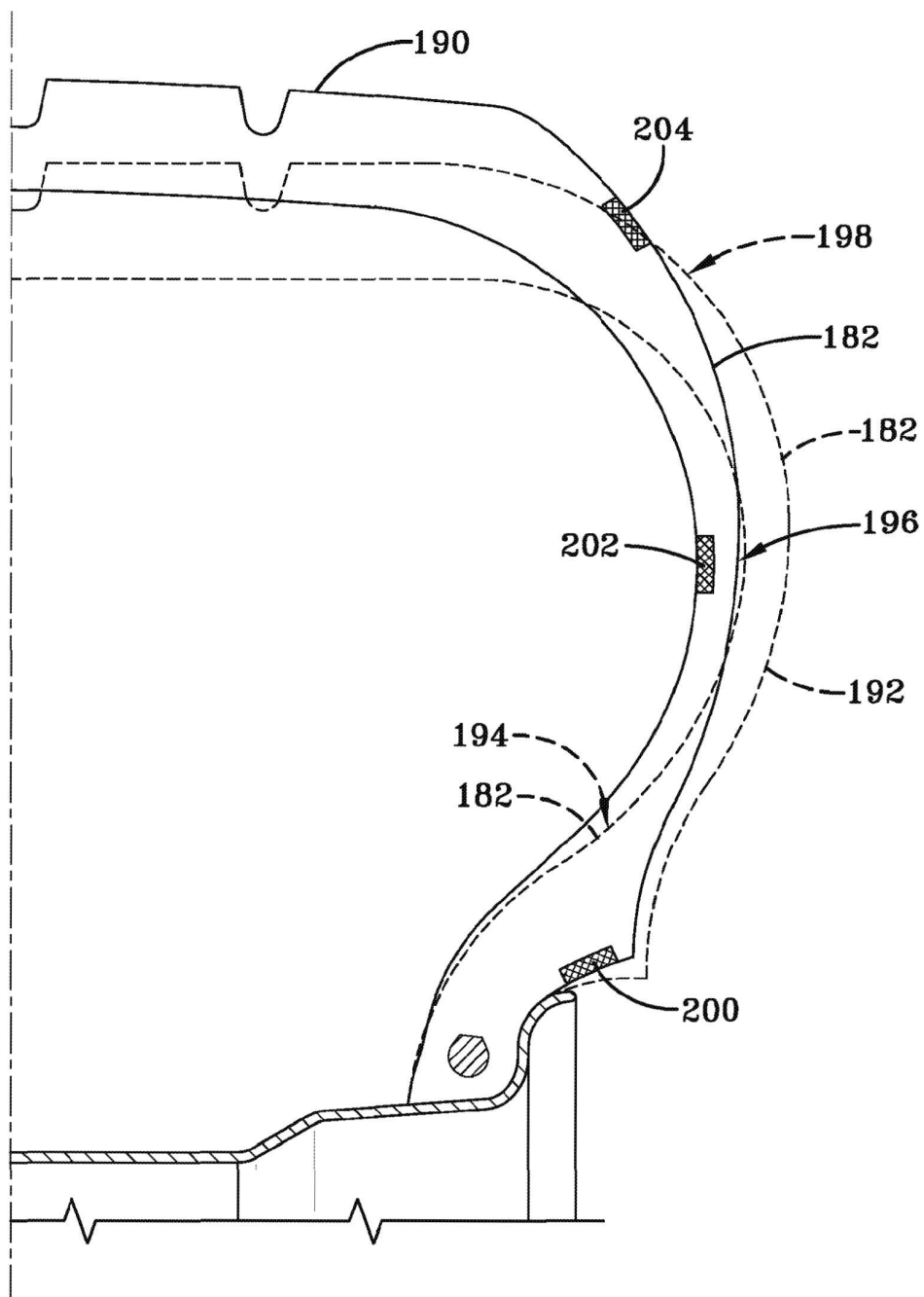


FIG-9B

US 8,042,586 B2

1 SELF-INFLATING TIRE ASSEMBLY

FIELD OF THE INVENTION

The invention relates generally to self-inflating tires and, more specifically, to a tire assembly incorporating a pump mechanism.

BACKGROUND OF THE INVENTION

Normal air diffusion reduces tire pressure over time. The natural state of tires is under inflated. Accordingly, drivers must repeatedly act to maintain tire pressures or they will see reduced fuel economy, tire life and reduced vehicle braking and handling performance. Tire Pressure Monitoring Systems have been proposed to warn drivers when tire pressure is significantly low. Such systems, however, remain dependant upon the driver taking remedial action when warned to re-inflate a tire to recommended pressure. It is a desirable, therefore, to incorporate a self-inflating feature within a tire that will self-inflate the tire in order to compensate for any reduction in tire pressure over time without a need for driver intervention.

SUMMARY OF THE INVENTION

According to an aspect of the invention, a self-inflating tire assembly includes a rim having a tire mounting surface extending between first and second rim flanges; a tire mounted to the rim tire mounting surface, the tire having a tire cavity, and first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region. The first sidewall includes a bending region operatively bending within a rolling tire footprint responsive to a bending strain. A sidewall groove is positioned within a compression side of a neutral axis of the bending region and an air tube is positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube. The sidewall groove operatively bends within the compression side of the bending region responsive to a bending strain within the rolling tire footprint to compress the air tube from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

In another aspect, the sidewall groove is positioned within the compression side of the bending region a maximum distance from the neutral axis.

In another aspect, first and second angled groove surfaces define opposite sides of the sidewall groove. Each angled groove defining surface includes first and second tube contacting surfaces adjoining at an angled intersection. The tube contacting surfaces of the first and second angled groove surfaces operatively contact the air tube at spaced apart intervals surrounding and substantially circumscribing the air tube.

The first and second angled groove surfaces, in yet another aspect of the invention, converge and join at an inward terminal groove end and operatively flex inwardly about the terminal groove end to constrict the sidewall groove and flatten a footprint segment of the air tube within the groove.

Pursuant to another aspect of the invention, the sidewall groove extends into an annular, axially extending, sidewall surface such as an axially oriented surface of a tire chafer protrusion located in non-contacting relationship with the rim.

2 DEFINITIONS

“Aspect ratio” of the tire means the ratio of its section height (SH) to its section width (SW) multiplied by 100 percent for expression as a percentage.

“Asymmetric tread” means a tread that has a tread pattern not symmetrical about the center plane or equatorial plane EP of the tire.

“Axial” and “axially” means lines or directions that are parallel to the axis of rotation of the tire.

“Chafer” is a narrow strip of material placed around the outside of a tire bead to protect the cord plies from wearing and cutting against the rim and distribute the flexing above the rim.

“Circumferential” means lines or directions extending along the perimeter of the surface of the annular tread perpendicular to the axial direction.

“Equatorial Centerplane (CP)” means the plane perpendicular to the tire’s axis of rotation and passing through the center of the tread.

“Footprint” means the contact patch or area of contact of the tire tread with a flat surface at zero speed and under normal load and pressure.

“Groove” means an elongated void area in a tread that may extend circumferentially or laterally about the tread in a straight, curved, or zigzag manner. Circumferentially and laterally extending grooves sometimes have common portions. The “groove width” is equal to tread surface area occupied by a groove or groove portion, the width of which is in question, divided by the length of such groove or groove portion; thus, the groove width is its average width over its length. Grooves may be of varying depths in a tire. The depth of a groove may vary around the circumference of the tread, or the depth of one groove may be constant but vary from the depth of another groove in the tire. If such narrow or wide grooves are substantially reduced depth as compared to wide circumferential grooves which the interconnect, they are regarded as forming “tie bars” tending to maintain a rib-like character in tread region involved.

“Inboard side” means the side of the tire nearest the vehicle when the tire is mounted on a wheel and the wheel is mounted on the vehicle.

“Lateral” means an axial direction.

“Lateral edges” means a line tangent to the axially outermost tread contact patch or footprint as measured under normal load and tire inflation, the lines being parallel to the equatorial centerplane.

“Net contact area” means the total area of ground contacting tread elements between the lateral edges around the entire circumference of the tread divided by the gross area of the entire tread between the lateral edges.

“Non-directional tread” means a tread that has no preferred direction of forward travel and is not required to be positioned on a vehicle in a specific wheel position or positions to ensure that the tread pattern is aligned with the preferred direction of travel. Conversely, a directional tread pattern has a preferred direction of travel requiring specific wheel positioning.

“Outboard side” means the side of the tire farthest away from the vehicle when the tire is mounted on a wheel and the wheel is mounted on the vehicle.

“Peristaltic” means operating by means of wave-like contractions that propel contained matter, such as air, along tubular pathways.

“Radial” and “radially” means directions radially toward or away from the axis of rotation of the tire.

“Rib” means a circumferentially extending strip of rubber on the tread which is defined by at least one circumferential

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groove and either a second such groove or a lateral edge, the strip being laterally undivided by full-depth grooves.

"Sipe" means small slots molded into the tread elements of the tire that subdivide the tread surface and improve traction, sipes are generally narrow in width and close in the tires footprint as opposed to grooves that remain open in the tire's footprint.

"Tread element" or "traction element" means a rib or a block element defined by having a shape adjacent grooves.

"Tread Arc Width" means the arc length of the tread as measured between the lateral edges of the tread.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described by way of example and with reference to the accompanying drawings in which:

FIG. 1 is an isometric view of tire, rim and tubing with peristaltic pump and inlet valve.

FIG. 2 is a side view of tire with location of tubing and valves and showing user set valve location.

FIG. 3A is an enlarged fragmentary view of pump for outlet to tire cavity.

FIG. 3B is enlarged fragmentary view of inlet and filter.

FIG. 3C is an enlarged fragmentary view of inlet and filter in the exhaust mode.

FIG. 4A is a side view of tire, rim, tubing, and valves showing operation of the pump to cavity flow when the tire rotates.

FIG. 4B is a side view of the tire, rim, tubing, and valves showing operation of flow back out of the filter (cleaning) when the tire rotates.

FIG. 5 is an enlarged section view of a prior art flattened air tube and rim location.

FIG. 5A is an enlarged section view of the prior art air tube and rim location with the air tube in an restored original diameter condition.

FIG. 6 is a section view of the air tube, tire, and rim assembly with the air tube located within a configured sidewall groove pursuant to the invention.

FIG. 6A is an enlarged section view of the air tube within the configured groove of FIG. 6 with the tube in an un-flat condition.

FIG. 6B is an enlarged section view of the air tube within the configured groove of FIG. 6 with the tube in a flattened condition.

FIG. 7A is an enlarged section view of an air tube located within an alternatively configured sidewall groove with the air tube in an un-flattened condition.

FIG. 7B is an enlarged section view of the air tube in a flattened condition within the alternatively configured groove of FIG. 6.

FIG. 8 is a sectional view of an air tube, rolling tire, and rim assembly illustrating the location of the tire footprint relative to the air tube.

FIG. 8A is an enlarged view of the identified region of FIG. 8, showing a flattened air tube and sidewall groove within a tire sidewall.

FIG. 9A is a schematic representation of a bending region of a tire sidewall adjacent a rolling tire footprint.

FIG. 9B is a schematic representation of a tire transforming from an original configuration into a bending configuration adjacent a rolling tire footprint, whereby forming multiple bending regions.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGS. 1 and 2, a tire assembly 10 includes a tire 12, a peristaltic pump assembly 14, and a tire rim 16. The

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fire mounts in conventional fashion to a pair of rim mounting surfaces 18, 20 adjacent outer rim flanges 22, 24. The rim flanges 22, 24, each have a radially outward facing surface 26. A rim body 28 supports the tire assembly as shown. The tire is of conventional construction, having a pair of sidewalls 30, 32 extending from opposite bead areas 34, 36 to a crown or tire tread region 38. The tire and rim enclose a tire cavity 40.

As seen from FIGS. 2 and 3A, B, and C, the peristaltic pump assembly 14 includes an annular air tube 42 that encloses an annular passageway 43. The tube 42 is formed of a resilient, flexible material such as plastic or rubber compounds that are capable of withstanding repeated deformation cycles wherein the tube is deformed into a flattened condition subject to external force and, upon removal of such force, returns to an original condition generally circular in cross-section. The tube is of a diameter sufficient to operatively pass a volume of air sufficient for the purposes described herein and allowing a positioning of the tube in an operable location within the tire assembly as will be described.

The peristaltic pump assembly 14 further includes an inlet device 44 and an outlet device 46 spaced apart approximately 180 degrees at respective locations within the air tube 32. The outlet device 46 has a T-shaped configuration in which T-sleeves 48, 50 join at one end to an outlet sleeve 52. An internal outlet passageway 54 extends through the outlet sleeve 52 and is in air flow communication with the tire cavity 40. Situated within an axial chamber of each of the T-sleeves 48, 50 is a valve unit 56 positioned opposite and in air-flow communication with the outlet passageway 54 of the outlet sleeve 42. The valve unit 56 is of a conventional type commercially available, and includes a pair of one-way ball valves 60, 62, each seated within a respective ball valve chamber 64. The ball valves 60, 62 are spring biased (not shown) in conventional manner into a normally closed configuration closing off the outlet passageway 54. When air from the passageway 43 impinges on the ball valves 60, 62 with a sufficient pressure to overcome the tire cavity biasing pressure, the ball valves move rearward and the T-outlet is open to the passage of air from passageway 43 out of the outlet passageway 54. The magnitude of bias necessary for the air from passageway 43 to overcome can be set so as to regulate the flow of air out of the outlet device 46 by also incorporating a biasing spring (not shown) against each ball valve 60, 62, biasing with the tire cavity pressure the ball valves into a closed position. The air from tube passageway 43 must be of sufficient pressure to overcome the tire cavity pressure and biasing spring pressure for the ball valves to move into an open position, whereby starting a flow of air into the tire cavity 40.

The inlet device 44 is similarly of T-shaped configuration having a pair of co-axial inlet sleeves 70, 72 co-aligned with an inlet portal sleeve 74. An air passageway 76 extends through the inlet portal sleeve 74 and permits the flow of air into and out of the air passageway of the tube 42, via passageway 78. A filter 80 may be positioned within the inlet portal sleeve 74. Filter 80 is composed of a porous filtering agent of a type conventionally available. So positioned within the sleeve 74, the filter 80 purifies air entering the tube passageway 43, identified in FIG. 3B as "outside air". A back flow of air out of passageway 43, through the filter 80 within sleeve 74, operates to self-clean the filter by forcing out particles trapped within the porous filtering medium. An insert T-body 82 resides within the inlet device 44 and serves to line the sleeves 70, 72.

As will be appreciated from FIGS. 3A-C and 4A, the inlet device 44 and the outlet device 46 are positioned within the circular air tube 42 generally 180 degrees apart. The tire rotates in a direction of rotation 88, causing a footprint 100 to

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be formed against the ground surface **98**. A compressive force **104** is directed into the tire from the footprint **100** and acts to flatten a segment of the air tube passageway **43** as shown at numeral **106**. Flattening of the segment of the passageway **43** forces air from the segment along tube passageway **43** in the direction shown by arrow **84**, toward the outlet device **46**.

As the tire continues to rotate in direction **88** along the ground surface **98**, the tube **42** will be sequentially flattened or squeezed opposite the tire footprint segment by segment in a direction opposite to the direction of tire rotation **88**. The sequential flattening of the tube passageway **43** segment by segment causes evacuated air from the flattened segments to be pumped in the direction **84** within tube passageway **43** to the outlet device **46**. When the air flow is sufficient against ball valve **60**, the valve will open and allow air to flow through the outlet device **46** to the tire cavity as shown at **86**. As referenced by arrow **86**, air exiting the outlet device sleeve **52** is routed to the tire cavity **40** and serves to re-inflate the tire to a desired pressure level. The tire cavity pressure acts against the ball valves **60**, **62** in combination with any ancillary biasing spring (not shown) which must be overcome by the air pressure within the tube passageway **43** in order for the ball valve to open.

With the tire rotating in direction **88**, flattened tube segments are sequentially refilled by air **92** flowing into the inlet device **44** along the passageway **43** in the direction **90** as shown by FIGS. 3B and 4A. The inflow of air from the inlet device **44** in direction **90** continues until the outlet device **46**, rotating counterclockwise as shown with the tire rotation **88**, passes the tire footprint **100**. FIG. 3C and FIG. 4B show the orientation of the peristaltic pump assembly **14** in such a position. In the position shown, the tube **42** continues to be sequentially flattened segment by segment opposite the tire footprint by compressive force **104** as shown at numeral **106**. Air is pumped in the clockwise direction **94** to the inlet device **44** where it is evacuated or exhausted from the passageway **43**. Passage of exhaust air **96** from the inlet device **44** is through the filter **80** which acts to self-clean the filter of accumulated debris or particles within the porous medium. With the evacuation of pumped air out of the inlet device **44**, the outlet device is in the closed position and air does not flow to the tire cavity. When the tire rotates further in counterclockwise direction **88** until the inlet device **44** passes the tire footprint **100** (as shown in FIGS. 3A, 3B, and 4A), the airflow resumes to the outlet device **46**, opening the ball valve within the outlet device **46**, and causing the pumped air to flow out (**86**) to the tire cavity **40**.

FIG. 4B illustrates that the tube **42** is flattened **102** segment by segment as the tire rotates in direction **88**. A flattened segment **111** moves counterclockwise in direction **88** with the tire as an adjacent segment **112** moves opposite the tire footprint. Accordingly, the progression of squeezed or flattened tube segments can be seen to move in a clockwise direction, counter to the tire rotation in direction **88**. As segment **111** moves away from the footprint **100**, the compression forces within the tire from the footprint region are eliminated and the segment **111** is free to resiliently reconfigure into an unflattened state as segment **111** refills with air from passageway **43**. In the original non-flattened configuration segments of the tube **42** are generally circular in section.

The above-described cycle is then repeated for each tire revolution, half of each rotation resulting in pumped air going to the tire cavity and half of the rotation the pumped air is directed back out the inlet device filter **80** to self-clean the filter. It will be appreciated that while the direction of rotation **88** of the tire **12** is shown in FIGS. 4A and 4B to be counterclockwise, the subject tire assembly and its peristaltic pump

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assembly **14** will function in like manner in a (clockwise) reverse direction of rotation to that shown at numeral **88**. The peristaltic pump is accordingly bi-directional and equally functional with the tire assembly moving in a forward or a reverse direction of rotation.

One location of the peristaltic pump assembly within the tire assembly **10** will be understood from FIGS. 5 and 5A. As shown, the peristaltic pump assembly **14** is positioned between the rim flange surface **26** and a lower bead region **34** of the tire **12**. So positioned, the air tube **42** is radially inward from the tire footprint **100** and is thus positioned to be flattened by forces directed from the tire footprint as described above. The segment of the tube **42** opposite the footprint of a rolling tire will flatten from the compressive force directed from the footprint, whereby pressing the tube segment against the rim flange surface **26**. The positioning of the tube **42** is specifically shown as between a chafer **120** of the tire at the bead region **34** and the rim surface **26**. The diametric sizing of the peristaltic pump air tube **42** is selected to span the circumference of the rim flange surface **26**.

The tube **42** is closed by contact between the tire and the rim surface **26**. While such a location is feasible, an exact placement of the tube **42** is required. In addition, possible chafing may occur to the tube **42** from friction with the rim surface **26**. Such chafing may over time cause a degradation or failure of the tube **42**. In addition, such a location may prove sensitive to rim variations that can make the above-mentioned exact placement of the tube **42** problematic. Placing the tube **42** against the rim surface **26** can further create the risk that the connection will strike the tire valve stem.

A preferred location for the air tube assembly **14** is as shown in FIGS. 6, 6A, 6B, 8, and 8A. The tube **42** is located within a groove **126** in the sidewall **30** of the tire **12**. The tube **42** as will be explained is closed by compression strain bending the sidewall groove **126** within a rolling tire footprint. The location of the tube **42** in the sidewall **30** affords the user freedom of placement and avoids contact between the tube **42** and the rim **16**. The higher placement of the tube **42** in the sidewall groove **126** uses the deformation of the sidewall as it passes through the tire footprint to close the tube and provide the pumping action rather than pinching the tube as shown in FIGS. 5 and 5A.

The configuration and operation of the groove **126** to flatten the tube **42** is shown in FIGS. 6A and 6B. The groove **126** is defined by parallel entryway sidewalls **128**, **130** at a groove entryway opening **132** having a nominal width **W1**. The width **W1** is sufficient to closely admit the tube **42** with interference but without constricting the air passageway **43** extending through the tube **42**. An interior generally triangular shaped groove portion **134** is defined between convergent groove sidewalls **136**, **138**. The sidewalls **136**, **138** intersect entryway sidewalls **130**, **128**, respectively at an obtuse angle. The sidewalls **136**, **138** converge inwardly at an angle α of approximately ninety degrees and contact the sides of the tube **42** in the position shown by FIG. 6A. The sidewalls **136**, **138** then converge inwardly to an inward U-shaped groove flex region **140** of a narrower width **W2** defined between sidewalls **162**, **164**. The sidewalls **162**, **164** intersect respectively sidewalls **136**, **138** at an obtuse angled junction designated by numerals **166**, **168**. The sidewalls **162**, **166** extend to an inward radius end **142** of the U-shaped groove flex region **140**. In the tube-expanded condition of FIG. 6A, the contact of surfaces **136**, **138** and **128**, **130** against the tube **42** is sufficient to hold the tube pump assembly **14** within the groove **126**.

The location of the pump assembly **14** within the tire sidewall is distanced from the rim **16** as shown. A preferred location of the pump assembly tube **42** is within a groove **126**

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positioned in a generally axially extending chafer surface 144. The chafer 120 extends from the rim 16 and the location of the groove 126 within the surface 144 allows a separation of the tube 42 from the rim while efficiently transferring tube closing forces from sidewall deformation to the tube 42. As will be apparent from a combined consideration of FIGS. 4B, 6B, 8, and 8A, the tube 42 positioned within groove 126 is closed or flattened by compression due to tire sidewall 30 bending in the tire footprint 100. The force F from the footprint imposes an axial directed force F1 into the sidewall 30 which acts to close the groove 126 from the open configuration of FIG. 6A to the closed configuration of FIG. 6B. As a result, the entryway opening 132 of the groove 126 constricts to a width dimension W3 and the groove sidewalls 128, 130 and 136, 138 are forced inward. Inward pressure from the sidewalls 128, 130 and 136, 138 against the tube 42 causes the affected segment of the tube 42 to flatten and thereby pump air evacuated therefrom along unaffected segments of the air passageway 43. Surfaces 128, 130 and 136, 138 extend from the narrower inward groove surfaces 162, 164 defining groove portion 134. Compression forces F2 act to close the groove 126 as surfaces 162, 164 and the respective surfaces 128, 130, 136, 138 extending therefrom pivot inwardly about the radiussed end 142 of the groove portion 140. The angled relationship and profile of the surfaces 128, 130 to respective counterparts 136, 138 and 162, 164, extending from the inward U-shaped groove portion 134, act to close such surfaces inward evenly about the circumference of the tube 42 within the groove 126. Accordingly, the compression forces F2 transferred into the tube 42 by the surfaces 128, 130, 136, 138 are distributed about the circumference of the tube, causing an even and symmetrical flattening of the tube 42. An even and efficient pumping of evacuated air from the affected tube segment results. The affected segment of the tube 42 that is flattened is only that segment within the tire footprint 100. As the tire continues to rotate, as described previously, each flattened segment will resume its original configuration as represented in FIG. 6A as an adjacent segment within the tire footprint is flattened.

It will be seen from FIGS. 6A and 6B that the surface pairs 128/136 and 130/138 form a continuous obtuse-angled surface along each side of the groove 126, the angled surface at each side angling away from the center of the groove. The angled surface along each side of the groove adjoins continuously at intersections 166, 168 with the sidewalls 162, 164 of the U-shaped narrow inner groove portion. Compressive forces F2 on the groove 126 causes the angled surfaces formed by surface pairs 128/136 and 130/138 to flex inward toward the groove center about the terminal end 170 of the U-shaped narrow groove portion 140. The spring flexure of the angled surfaces about the terminal end 170 clamps the surface pairs about the circumference of a segment of the tube 42 and causes the segment to flatten inwardly. The spring force applied by the angled surfaces on the flattened groove segment is released when the compressive forces F2 are removed from the groove 126. At this point, the grooved surfaces formed by adjoining surfaces by the tube segment 128/136 and 130/138 flex outwardly to an original orientation along the sides of the groove 126, releasing the flattened tube segment to reconfigure into a non-flat configuration.

FIGS. 7A and 7B show an alternatively configured groove 148 defined between angled adjoining surfaces 150/160 and 152/158. The angled sides of the groove 148 extend to a terminal end 172 of a radiussed inward portion of the groove 148. The surfaces 150, 152 diverge at an angle β of approximately sixty degrees to a mid-section of the tube and converge at a like angle α to the terminal end 172. FIG. 7A shows the

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groove or channel 148 in a non-compressed configuration. The groove entryway opening 154 has a relatively wider width dimension W1 that is smaller than the nominal expanded diameter of the tube 42. Accordingly, the tube 42 may be press inserted through the opening 154 and be subsequently captured within the groove 148.

FIG. 7B shows the groove 148 in a compressed configuration subject to compression forces F3. As with the groove 126 described previously, bending of the groove 148 causes surfaces 150/160 and 152/158 to press inward against the circumference of air tube 42, causing a segment of the air tube 42 within a tire footprint to evenly flatten in a controlled fashion. The surfaces 150/160 and 152/158 are angled to distribute compressive force against the circumference of the tube 42. In the compressed state, the opening W2 is reduced to a narrower width dimension as shown. The angles α and β as well as the groove dimensions W1 and W2 identified in the groove configuration of FIGS. 6A, 6B and the configuration of FIGS. 7A, 7B will be suitably correlated to the diameter of the tube 42 selected. The angles and groove widths functionally sufficient to cause the groove sidewalls to engage the tube 42 within the groove may be readily determined as a function of the diameter of the tube 42 employed.

From the foregoing, it will be appreciated that the subject invention provides a bi-directionally peristaltic pump for a self-inflating tire in which a circular air tube 42 flattens segment by segment and closes in the tire footprint 100. The air inlet T-device 44 may include a filter 80 and be self-cleaning. The outlet T-device 46 employs a valve unit that may be configured as two one-way valves such as, but not limited to, the ball valves 60, 62. The peristaltic pump assembly 14 pumps air under rotation of the tire in either direction, one half of a revolution pumping air to the tire cavity 40 and the other half of a revolution pumping air back out of the inlet device 44 (filter 80). The peristaltic pump assembly 14 may be used with a secondary tire pressure monitoring system (TPMS) (not shown) of conventional configuration that serves as a system fault detector. The TPMS may be used to detect any fault in the self-inflation system of the tire assembly and alert the user of such a condition.

From the foregoing, it will be appreciated that the subject invention achieves a self-inflating tire assembly 10 including the rim 16, tire 12; and air tube assembly 14 located within the tire sidewall groove 126. The air tube 42 is in contacting engagement with opposite angled groove surfaces (128/136 and 130/138) surrounding the air tube 42. The air passageway 43 of a footprint segment of the air tube 43 is flattened from an expanded diameter to a flat diameter by compression of the groove in a rolling tire footprint to force air evacuated from the flattened segment along the air passageway 43.

It will be further noted that each of the surfaces 128, 130, 136, 138 of the angled groove defining surfaces (128/136 and 130/138) adjoining at an angled intersection and operatively contact the air tube 42 at spaced apart intervals surrounding and substantially circumscribing the air tube 42. An efficient and even collapse of the footprint segment of the air tube 42 by convergence of the contacting surfaces is thereby facilitated. The first and second angled groove surfaces (128/136 and 130/138) converge and join at an inward terminal groove end 170 and operatively flex inwardly about the terminal groove end 170 to constrict the sidewall groove 126 and flatten a footprint segment of the air tube 42 within the groove 126.

The sidewall groove 126 extends in a radial direction (FIG. 6) preferably but not necessarily into an annular, axially extending, sidewall surface such as an axially oriented surface 144 of a tire chafer protrusion 120. So located, the tube

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is in non-contacting, separated relationship with the rim 16 and protected from potentially damaging contact with the rim by the intervening chafer protrusion 120. Such a location, while protecting the tube 42, still exposes the groove 126 to adequate compression forces within the tire footprint. The compression forces generated within the tire footprint operate to close the groove 126 upon a footprint tube segment within the groove. Flattening of the footprint tube segment pumps evacuated air along the air passageway 43 to the tire cavity or to an outlet portal.

FIGS. 9A and 9B illustrate in schematic representation the placement of the groove and air tube within a tire. As will be appreciated, the sidewalls of a rolling tire generally bend and undergo a geometric transformation from bending strain introduced into the sidewalls as the tire rolls against a ground surface. The bending strain within sidewall regions adjacent to a tire footprint causes the radius of curvature within certain such sidewall regions of the sidewalls to bend to a greater extent. In a bending region 174 of a sidewall, the region transforms from the unstrained configuration shown at 176 into the bending configuration shown at 178. In the bending condition, the region 174 will have a neutral axis 180 that is not under strain; a compression side 182 of the neutral axis 180 of the region 174 that is under compression, and an elongation side of the neutral axis 180 of the region 174 that under elongation. For placement of the groove and air tube, a bending region of the sidewall is selected that will experience bending strain when that region is adjacent to the tire footprint. The compression side 182 of the region 174 is satisfactory for placement of the groove and tube assembly 188 since a compression of the side 182 of the region 174 will cause the groove to close around the air tube. To the contrary, the elongation side 184 of the region 174 is unsatisfactory for such a side under elongation strain, will cause the groove to widen rather than close, and not result in a flattening of the tube. Placement of the groove and tube assembly 188 should further be placed within the compression side 182 of the region 178 at a location farthest removed from the neutral axis 180, for such a location will experience the greatest compression strain. Location of the groove and tube 188 farthest from the neutral axis 180 of the selected bending region 174 will accordingly expose the groove to maximum closing due to a maximum compression force and bending imposed upon the tire region surrounding the groove. As a result, efficient and complete closing and collapse of the groove will be effected, causing an equally efficient and complete flattening of the air tube within the groove.

FIG. 9B illustrates in schematic form three sidewall regions of a sidewall that undergo curvature bending transformation when adjacent to a tire footprint. The original tire shape 190 is shown and configuration 192 is superimposed to show tire deformation adjacent to a tire footprint. Three bending regions 194, 196, 198 (for the purpose of illustration) are identified that will undergo strain-induced radius of curvature transformation adjacent a rolling tire footprint. Other regions are available and may be selected for groove and air tube placement if desired. As shown, bulging of the tire into the configuration 178 causes the regions 194, 196, 198 to bend to a greater extent (i.e. at a reduced radius) than within the original configuration 176. Each region 194, 196, 198 will have a neutral, unstrained axis, a compression side of the axis, and an elongation side of the axis as explained above in reference to FIG. 9A. A groove and tube assembly 200, 202, or 204 will be positioned to the compression side 182 of the region selected, so that the compression of the compression side 182 will act to bend and constrict a segment of the groove adjacent to the tire footprint. Bending and constriction of the

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groove segment adjacent the tire footprint will commensurately cause a bending and flattening of an air tube segment within the bending groove segment, whereby pumping evacuated air from the flattened air tube segment along the air tube passageway. Positioning the groove and air tube within a bending region of the sidewall thus operates to utilize the bending compression strain within the region to effect a bending and collapse of the groove segment within the bending region.

Utilizing the bending strain within a bending region of a sidewall avoids the need to compress the air tube by pinching the air tube against a relatively hard barrier such as the tire assembly rim. Potential damage to the air tube from contact with the rim is thus avoided and the structural integrity of the air tube is preserved throughout the life cycle of the tire.

Variations in the present invention are possible in light of the description of it provided herein. While certain representative embodiments and details have been shown for the purpose of illustrating the subject invention, it will be apparent to those skilled in this art that various changes and modifications can be made therein without departing from the scope of the subject invention. It is, therefore, to be understood that changes can be made in the particular embodiments described which will be within the full intended scope of the invention as defined by the following appended claims.

What is claimed is:

1. A self-inflating tire assembly comprising:

a rim having a tire mounting surface extending between first and second rim flanges;

a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;

the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;

a sidewall groove positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall;

an air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

2. The tire assembly of claim 1, wherein the air tube and the sidewall groove are located within a sidewall region of the first tire sidewall above an upper boundary of the rim.

3. The tire assembly of claim 2, wherein the groove surfaces contact the air tube and bend within a footprint of a rotating tire to operatively close an air tube segment within the tire footprint.

4. The tire assembly of claim 3, wherein the air tube comprises an annular body extending substantially a circumference of a tire first sidewall.

5. The tire assembly of claim 4, wherein the sidewall groove is annular and located proximally above the upper boundary of the rim.

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6. The tire assembly of claim 1, wherein the groove extends into an annular, substantially axially extending, sidewall surface.

7. The tire assembly of claim 6, wherein the annular sidewall surface comprises a substantially axially oriented surface of a tire chafer protrusion located in non-contacting relationship with the rim, the groove extending into the annular sidewall surface in substantially a radial direction.

8. The tire assembly of claim 1, wherein the sidewall groove includes a sidewall groove opening operatively sized to closely admit the air tube.

9. The tire assembly of claim 8, wherein substantially the entirety of the air tube resides within the sidewall groove.

10. The tire assembly of claim 9, wherein first and second angled groove surfaces define opposite sides of the sidewall groove, each angled groove surface comprising first and second tube contacting surfaces adjoining at an angled intersection, and wherein the tube contacting surfaces of the first and second angled groove surfaces operatively contact the air tube at space apart intervals surrounding and substantially circumscribing the air tube.

11. The tire assembly of claim 10, wherein the first and second angled groove surfaces converge and join at an inward terminal groove end and operatively flex inwardly about the terminal groove end to constrict the sidewall groove and flatten a footprint segment of the air tube within the groove.

12. The tire assembly of claim 11, wherein the groove narrows toward the terminal groove end.

13. The tire assembly of claim 12, wherein an inward portion of the groove at the terminal groove end is substantially U-shaped.

14. The tire assembly of claim 13, wherein the first and second angled groove surfaces converge toward the inward portion of the groove.

15. The tire assembly of claim 14, wherein the groove extends into an annular, substantially axially extending, sidewall surface.

16. The tire assembly of claim 15, wherein the annular sidewall surface comprises a substantially axially oriented surface of a tire chafer protrusion located in non-contacting

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relationship with the rim and the groove extending into the annular sidewall surface in substantially a radial direction.

17. The tire assembly of claim 1, wherein the sidewall groove is positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall at a substantially maximum distance from the neutral axis.

18. A self-inflating tire assembly comprising:

a rim having a tire mounting surface extending between first and second rim flanges;

a tire mounted to the rim tire mounting surface, the tire having a tire cavity, first and second sidewalls extending respectively from first and second tire bead regions to a tire tread region;

the first sidewall having at least one bending region operatively bending within a rolling tire footprint responsive to a bending strain, whereby the bending region in a bending condition within said rolling tire footprint having a bending strain neutral axis, a compression side of the neutral zone, and an elongation side of the neutral zone;

a sidewall groove extending into an outward facing side of the sidewall and positioned within the compression side of the neutral axis of the one said bending region of the first tire sidewall, the sidewall groove being at least partially open to the outward facing side of the sidewall; an enclosed air conducting air tube positioned within the sidewall groove in contacting engagement with opposite groove surfaces at least partially surrounding the air tube, the sidewall groove operatively bending within the bending region responsive to the bending strain within the rolling tire footprint to compress the air tube between the opposite groove surfaces from an expanded diameter to a flat diameter adjacent the rolling tire footprint, whereby forcing evacuated air from a flattened air tube segment along the air passageway.

19. The tire assembly of claim 18, wherein the sidewall groove and the air tube therein are recessed within the first tire sidewall outward facing side.

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Circuit Rule 32(b)(1) because it contains 13,579 words.

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements to Fed. R. App. P. 32(a)(6) because the brief has been prepared in 14-point, proportionally-spaced Times New Roman font.

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